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RESEARCH PRODUCT 80-3

USE OF COMPUTER STATISTICAL PACKAGES TO GENERATE
QUALITY CONTROL REPORTS ON TRAINING

ARI Field Unit at Fort Knox, Kentucky

JANUARY 1980

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Research Product 80-3	2. GOVT ACCESSION NO. ADA086 085	3. RECIPIENT'S CATALOG NUMBER 9
4. TITLE (and Subtitle) 6 Use of Computer Statistical Packages to Generate Quality Control Reports on Training,	5. TYPE OF REPORT & PERIOD COVERED Final Report Oct 1978-Sep 1979	
7. AUTHOR(s) 10 David W. Bessemer Brian L. Kottas	8. CONTRACT OR GRANT NUMBER(s) 14 ARI-RP-81-3	
9. PERFORMING ORGANIZATION NAME AND ADDRESS US Army Research Institute for the Behavioral and Social Sciences, 5001 Eisenhower Avenue Alexandria, VA 22333 (PERI)	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 16 2Q163731A770	11. CONTROLLING OFFICE NAME AND ADDRESS 12 REPORT DATE 10 Jan 1980
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	13. NUMBER OF PAGES 62	15. SECURITY CLASS. (of this report) Unclassified
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Training Data Processing Management Attitudes (Psychology) Computers Computer Applications Automation Computer Programs Quality Control Statistical Analysis		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Obtaining timely and efficient training management information using limited computer resources and commercially available statistical packages may be difficult in practice. TRAMS (Training Monitoring System) uses the Statistical Package for the Social Sciences to provide graphic summaries and statistical analysis of personnel attitudes before, during, or after training, and can also evaluate changes in attitudes over training. TRAMS takes input from cards during batch processing and produces graphic displays very similar to quality control charts. The output allows a rapid detection of deviant samples and systematic changes in		

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attitudes over time. The system is readily adaptable to evaluation of training data other than attitudes, such as test scores, and easily provides ongoing monitoring of training results.

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USE OF COMPUTER STATISTICAL PACKAGES TO GENERATE
QUALITY CONTROL REPORTS ON TRAINING

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January 1980

Accession For	
NTIS G&I	<input checked="" type="checkbox"/>
Doc ID	<input type="checkbox"/>
Unrec'd	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Dist	Avail and/or special
A	23

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Army Project Number
2Q163731A770

Foreword

The Fort Knox Field Unit of the US Army Research Institute for the Behavioral and Social Sciences (ARI) initiated this project as part of a request for Technical Advisory Service to the US Army Armor Center at Fort Knox. The Armor Center requested a system for monitoring soldier attitudes toward training. Because of the time required and later requests to generalize the system to training data, the project was included in the FY 78 work program under RDTE project 2Q163731A770, Task D: Determination of Methods for Increasing the Combat Proficiency of Individual Armor Crewmen.


JOSEPH ZEIDNER
Technical Director

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Brief

Requirement:

Training managers require timely and readily understandable information about many aspects of training. To this end, the US Army Armor Center at Fort Knox requested Technical Advisory Service from the Fort Knox Field Unit of ARI to develop a system for monitoring trainee attitudes. A specific attitude monitoring system resulted from this effort and requests to generalize it to training scores led to development of instructions describing the procedures necessary for applying the system to analysis of training scores.

Procedure:

A system of four computer programs was developed, using the Statistical Package for the Social Sciences (SPSS), to analyze attitude data collected using a questionnaire developed by ARI. The approach could easily be adapted to other computer packages for statistical analysis to yield graphic output of results. The output reports attitude data on eight scales representing attitudes toward the Army and provides graphic output of data on each scale. The graphic output yields a point for each Company sampled, on a chart containing the 99% confidence limits for the data, allowing easy identification of deviant points. The accompanying statistics printed with each chart allow rapid assessment of statistically significant linear trends in attitudes.

Findings:

The resulting system, TRAMS (Training Monitoring System) proved to be usable for summarizing and displaying attitude data. The current report describes modifications required to use TRAMS for rapid and efficient analysis of any training data quantifiable along an interval scale.

Utilization of Findings:

TRAMS provides a system that could be used by the Army to easily monitor training data. Potential users of TRAMS should be acquainted with basic statistics (including linear regression), and may find a familiarity with one or more computer packages for statistical analysis to be helpful.

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INTRODUCTION

Those with the responsibility for monitoring large training programs face the problem of extracting information about the operation and progress of the program from massive amounts of data. Coding and analyzing such a formidable amount of data requires many hours of tedious work and is typically subject to human errors when done by hand. One way to alleviate both problems is to use existing computerized statistical packages, such as SPSS, to analyze large amounts of data rapidly and to provide managers with readily interpretable graphic displays of data.

The current report provides a description of a Training Monitoring System (TRAMS), which was initially developed to assess trainees' attitudes toward various aspects of the Army. The system uses an attitude questionnaire developed by ARI based on questionnaires constructed by Drucker (1974) and Kristiansen (1975). The attitude survey for which the SPSS computer programs were tailored was used during the US Army evaluation of Armor One Station Unit Training at Fort Knox (See Dials, Cook, and Bessemer, 1976).

TRAMS uses batch processing with Version 7.0 of SPSS to generate descriptive and quality-control statistics (see, for example, Bennett and Franklin, 1963, chapter 10) on trainee attitudes toward various aspects of the Army. Specifically, seven scales of attitudes are formed from items on an attitude questionnaire. These seven scales are combined to form a total attitude scale, and graphic output on each of the resulting eight scales is provided.

The user may find the SPSS Manual (1975) useful in interpreting the program and output. SPSS Manual Nr. 437, version 7.0 update, may also be helpful. TRAMS for SPSS could easily be converted to run under SAS 76 (Statistical Analysis System, 1976 version) using the SCATTER procedure, of BMD (Biomedical Computer Programs) using the General Plot procedure of BMD05D. The interested reader is referred to A User's Guide to SAS 76 (1976), and BMD Biomedical Computer Programs (1974). TRAMS could be readily adapted to monitor training, or any other process that involves scoring individuals upon some scale. Appendix A of this report describes how the specific programs for monitoring training attitudes could be modified for analysis of training data. Currently, the system is inappropriate for monitoring dichotomized data, such as GO/NO-GO data. An analogous system for handling GO/NO-GO data could be developed to produce similar output. Specifics would depend on user needs and resources for processing data prior to its submission to Automatic Data Processing. TRAMS is easily adapted to assessing changes in individual attitudes over time. The procedure for making such an adaptation is outlined in this report. A logical extension of assessing change in individual attitude over time is assessing individual performance changes over time, which the user may do easily.

OVERVIEW

The specific application of TRAMS reported here consists of four computer programs: (1) a "Summary" program, which accepts the raw data, provides a listing of the raw data, computes composite variables based on

responses to individual questions, prints summary descriptive statistics, and establishes a disk file (TRAZ) containing each individual's standardized scores, (2) an "Aggregate" program, which aggregates, or groups the individual standardized scores according to Company, Battalion, and week the sample was taken, prints the mean and standard deviation of standardized scores separately for each aggregated group, and establishes a disk file (TRAG) containing the number of individual cases in each aggregated group, as well as the mean and standard deviation of each aggregated group, (3) a "Charts" program, which lists the standard errors for each sample taken, prints control charts of trainee attitudes by company and battalion over time for a number of different attitude scales, and provides summary statistics to determine whether there is any significant change in trainee attitudes taking place over time, and finally, (4) "Audit," an administrative program that deletes the disk files established by the first two programs to release disk storage space for other uses. Figure 1 shows the order of running the four programs. Appendix A provides listings of all four programs appropriate for version 7.0 of SPSS. Note that information about a specific computer account has been deleted from the control statements, and that the control statements preceding the SPSS coding are specific to CDC 6000 series operating systems, such as that of the Data Processing Field Office (DPFO) at Ft Leavenworth. Information about control cards for other computer systems should be obtained from the local Management Information System Office (MISO).

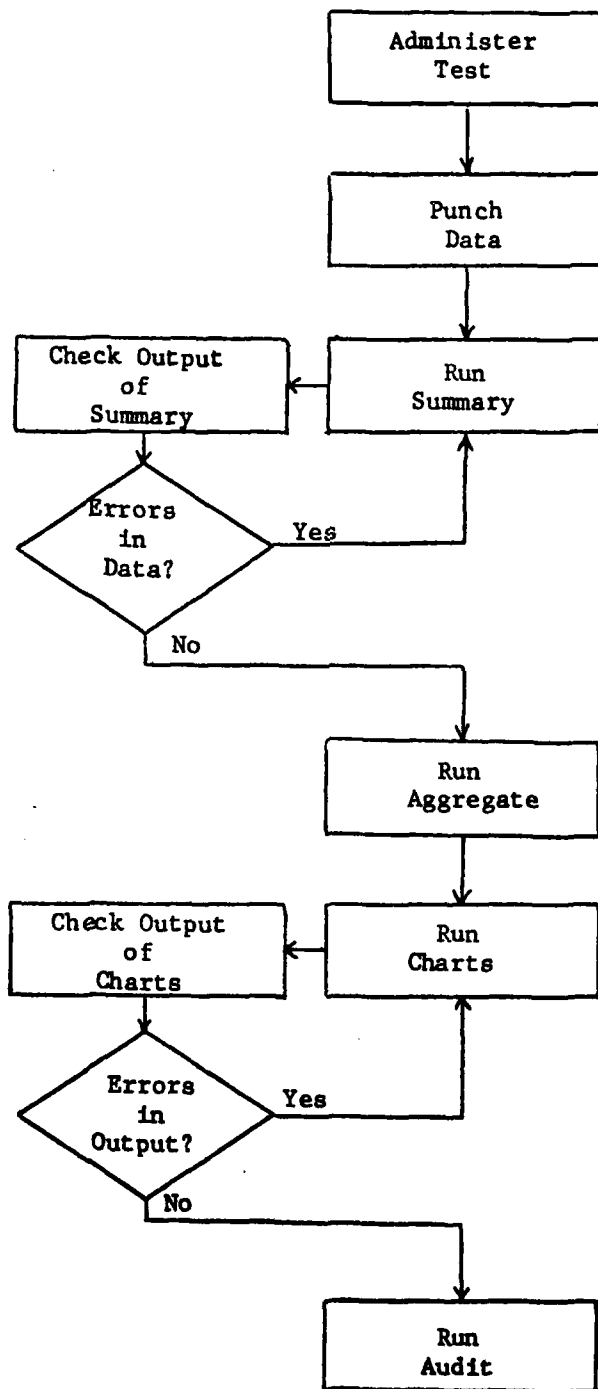


Figure 1. Flow of Programs

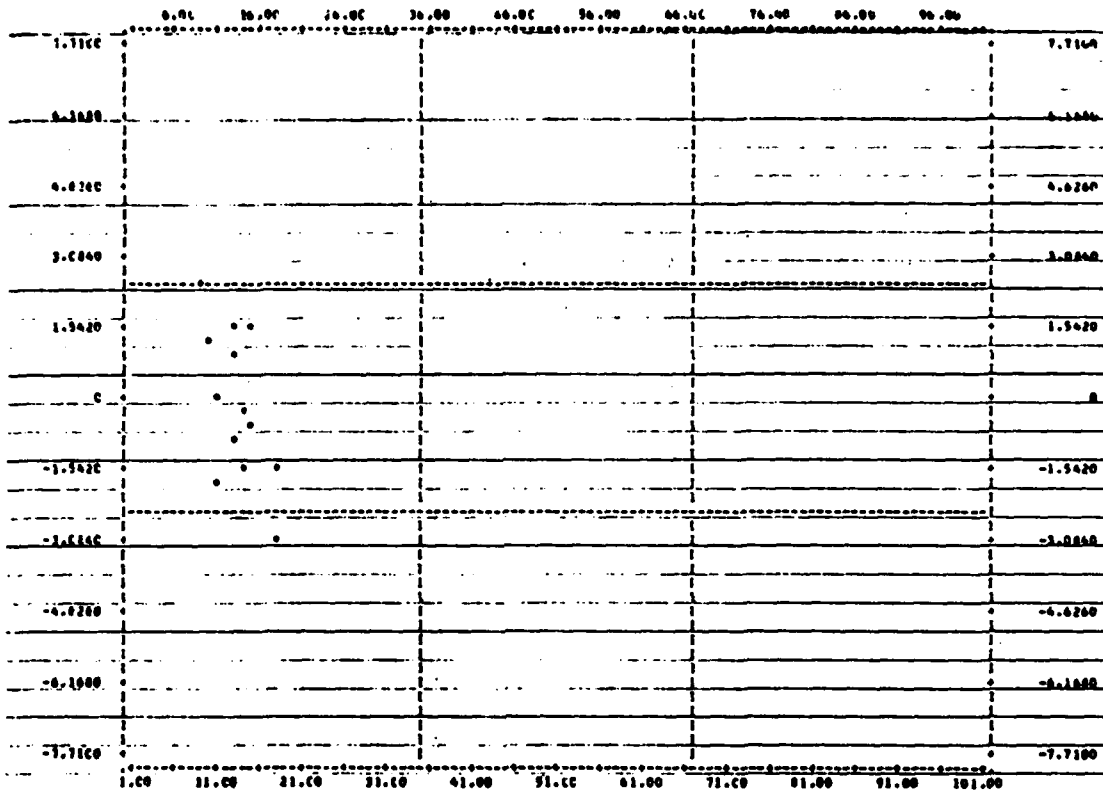
Interpretation of Output

The Charts program produces plots of attitudes on various scales as a function of the time at which the samples were taken. Figure 2 shows an example of the output from the Charts program along with the statistical results from analysis of the data. The points representing samples from different Companies starting training in different weeks are plotted within a square that is divided vertically into three equal parts by two horizontal dashed lines. The two horizontal lines represent the 99% confidence limits on the values taken by the points plotted on the charts. That is, only 1% of the points would be expected to fall above the top line or below the bottom line due to chance variation in attitudes over time. The horizontal axis of the chart represents the number of weeks elapsed since an arbitrary starting date (see pages I-2 and I-3 of Appendix I of this report), while the vertical axis of the chart represents the number of standard error deviations of a group mean from the grand mean of attitude responses (see pages 7-9 of this report). If a group of points cluster outside the control limits during a given time period, it indicates that some unusual influence may have operated during that time. The specific value for each point on each chart is printed prior to the charts, along with information about Company, Battallion, and the week the sample was taken. Hence, one can read the value of a given point off the chart, and refer to the preceding printout to determine which Company produced a given data point at a given time.

SCATTERPLOT

FILE: ACHAME LOCATION DATE: 10/21/76
SCATTERPLOT OF TOTAL ATTITUDE

1807551 6884 AREA SAMPLE TAKEN



SCATTERPLOT

STATISTICS..

CORRELATION (R) -	-.5061C	R SQUARED -	.25610	SIGNIFICANCE R -	.03509
STD ERR OF EST -	1.96340	INTERCEPT (A) -	4.90094	STD ERROR OF A -	1.94931
SIGNIFICANCE A -	.03095	SLOPE (B) -	-.54922	STD ERROR OF B -	.16287
SIGNIFICANCE B -	.03509				
EXCLUDED VALUES -	13	EXCLUDED VALUES -	0	MISSING VALUES -	0

***** IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED.

Figure 2. Sample Output of Charts Program

Examining the printout in relation to the charts will provide indications of whether changes in attitudes, or unusually high or low attitudes, are tied to events within a given Company or Battalion, or whether factors external to events in individual units may have influenced attitudes. For example, suppose that an unusual number of high points occur outside the control limits at widely separated times. Upon examination of the printout, one might find that a high proportion of the points above the upper control limit are attributable to a given Company, which would lead one to examine the procedures or activities in that company that may have been responsible for the unusually favorable attitudes toward the Army. On the other hand, a cluster of low points at one time might indicate the influence of an external event, such as severe weather, in that time period.

One must avoid drawing conclusions about one or a few isolated points outside the control limits. Many factors may produce only temporary changes in attitudes, and one should be very cautious about trying to interpret such fluctuation in attitudes.

Perhaps more important than points falling outside the control limits of any chart is the presence of a significant trend occurring over time, reflecting a systematic shift in attitudes. The statistics printed with each chart help to determine whether any linear trend is statistically significant. Given the printout of Version 7.0 of SPSS, the user only need be concerned with the significance value associated with the slope (B) of the regression line fitted to the points (which is identical to the significance of the correlation coefficient, R). The value on the output

after "SIGNIFICANCE A" simply indicates whether the intercept of the regression line upon the ordinate (Y axis) differs significantly from zero, and does not reflect a test of a significant trend in the data. If the significance level associated with the slope of the regression line reaches .01 or less, the user can be reasonably certain that the data show a reliable increase or decrease in attitudes (or attitude change) over time. For example, the data presented in Figure 2 can best be fitted by a line intercepting the vertical axis at 4.56854 and with a slope of $-.34322$, indicating a decline in scaled attitude over time. The statistics show that the trend misses the suggested .01 significance level. The user who is familiar with statistics may wish to adopt a more liberal significance criterion. However, the .01 level is recommended here because most training institutions will be handling massive amounts of data and will probably have time and resources to pursue investigation of only highly significant trends. Furthermore, the adoption of a conservative significance level reduces the likelihood that the statistically unsophisticated user will expend unnecessary time and effort investigating spuriously significant trends, or small temporary shifts.

Statistical Considerations

TRANS converts the raw scores on the punched cards to standard scores, or Z scores, for the purpose of analysis. The Z scores for each variable are calculated from all scores submitted with the run for that variable. When the sample is split up into aggregation groups (in this case each

different Company within each different Battalion for each different sample over time), the mean and standard deviation of Z scores for each aggregation group are calculated. Note that since the Z scores are calculated from all raw scores in all samples, the mean Z score will necessarily equal zero and the standard deviation will necessarily equal one for the entire set of scores. However, the mean and standard deviation of Z scores based on the subset of scores for an aggregate group normally will not equal these values.

SPSS converts all raw scores to Z scores, places the Z scores into subgroups, and calculates the mean Z score within each subgroup. The mean Z score within each subgroup (designated $M_i(Z)$, $i = 1, 2, \dots, K$, where K is the number of subgroups) is multiplied by the square root of the number of observations within that particular i th subgroup. This manipulation yields Z_{M_i} defined as the deviation of the mean Z score in the i th subgroup (M_i) from the grand mean (M_G) standardized in terms of the standard error of the mean (S_{M_i}). Symbolically, the definition is

$$Z_{M_i} = \frac{M_i - M_G}{S_{M_i}} \quad (1)$$

Then substituting for the standard error, $S_{M_i} = S_G / \sqrt{N_i}$, where S_G is the standard deviation of the entire sample, and N_i is the number of scores in the i th subgroup, the result is

$$Z_{M_i} = \frac{\sqrt{N_i} (M_i - M_G)}{S_G} \quad (2)$$

By definition, the average Z score of a subgroup, denoted by $M_i(Z)$, is

$$M_i(Z) = \frac{\sum_{j=1}^{N_i} Z_{ij}}{N_i} = \frac{\sum_{j=1}^{N_i} \frac{X_{ij} - M_G}{S_G}}{N_i} =$$

$$\frac{\sum_{j=1}^{N_i} X_{ij} - N_i M_G}{N_i S_G} = \frac{M_i - M_G}{S_G} \quad (3)$$

Substituting $M_i(Z)$ for its equivalent in expression (2), the result is

$$Z_{M_i} = \sqrt{N_i} M_i(Z) \quad (4)$$

Rescaling the group means in standard error units is necessary to equate the sampling variability among groups of different size. Assuming an approximately normal distribution of the rescaled group means, the table of the normal curve can be used to establish upper and lower control limits and to determine the probability that a group mean will fall between the limits. These limits are the same for each standardized subgroup mean, regardless of sample size. By correctly scaling the ordinate of the graph in the SCATTERGRAM output, the control limits are made to correspond to fixed horizontal lines in normal control chart format.

An advantage of assessing data in terms of their deviation from averages within a large and fairly contemporary sample is that it minimizes the problem of long-term drift in the source population that could be a problem if sample results were compared to some standing set of "norms". A further advantage is that the standard error approach outlined

here does not require extensive amounts of data collection necessary for establishing "norms" before one can begin evaluating data.

TRAMS sets limits of ± 2.57 standard errors that have a .99 probability of containing a mean. That is, one would expect 99% of the group means to fall within the control limits printed on the Charts output. If a group of points cluster outside the control limits during a given time period, it indicates that some unusual influence occurred during that time. The 99% confidence limits are less stringent than the ± 3 standard error control limit traditionally used for quality control charts (see Bennett and Franklin, 1963), but were felt to be more easily interpreted by a statistically unsophisticated user. Other limits can be obtained easily by changing parameters on the SPSS SCATTERGRAM procedure cards.

Possible Adaptations

TRAMS has a good deal of potential for adaptation to other uses. Besides monitoring attitudes, the general format for TRAMS could be used to monitor training, when training scores are assigned along a continuum (not GO/NO-GO) and the numbers along the continuum reflect equal intervals along the scoring dimension (i.e., the difference between scores of 1 and 2 is the same as the difference between scores of 9 and 10, etc.). In fact, the approach taken in TRAMS could conceivably be applied to monitoring the output of any system for which the output could be expressed numerically along an equal interval scale. A description of adaptation of TRAMS to hypothetical training data is provided in Appendix B.

Appendix C describes an adaptation of the TRAMS Summary program that interfaces with the existing Aggregate, Charts, and Audit programs to assess changes in individual attitudes over time, rather than assessing group attitudes over time. If the user understands the modifications in Appendix B that allow assessment of training data, there should be little difficulty generalizing those changes and converting the listing in Appendix C to a program for assessing individual training performance changes over time.

PROCEDURES

The user of the attitude monitoring system described in this report should see that the attitude questionnaire in Appendix D of this report is administered according to the instructions in Appendix E, and that the resulting data are punched according to the format described in Appendix F. Appendix G gives a brief summary of information for administering the questionnaire and getting the data cards punched. After these are completed, the user can run the four programs for analyzing attitude data. Every time the programs are run, the user must update the card decks by making a few minor modifications. These modifications are indicated by comment cards inserted in the decks, and are described in detail in Appendix H. Additionally, there are modifications that the user may wish to make to the attitude analysis programs for the sake of convenience. These modifications are not absolutely necessary, but may be helpful in many instances. These possible modifications are described in Appendix I.

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APPENDIX A

LISTING OF FOUR ATTITUDE MONITORING PROGRAMS:

A SPECIFIC APPLICATION OF TRAMS

1. SUMMARY PROGRAM

```

-IVT01,T1000,CH100000,SPUU_____ *IRAMS,INITIALIZE & UPDATE DATA*
TASK,IN= ,TA= ,OS= ,TR= ,PI=KCTTAS.
-READING,KUTIAS.
-READING,IRAMS
-READING,SUMMARY.
ATTACH,SPSS, ID=PUBLIC,MR=1.
-REQUEST,TRAZ,*PF.
-REQUEST,TRAN,*PF.
-SPSS,A=TRAZ,S=TRAW.
CATALOG,TRAN,ID=
CATALOG,TRAZ,ID=

-FILE NAME TRAW
COMMENT THIS RUN OUTPUTS DESCRIPTIVE STATISTICS ON INPUT SAMPLE
AND CREATES A BCD FILE OF SCALE SCORES.
COMMENT RUN NUMBER N, DATE GG HERE
COMMENT CHANGE RUN NUMBER AND DATE FOR EACH RUN
NUMBERED YES
-RUN NAME CONDESCRIPTIVE STATS
VARIABLE LIST ITEM1 TO ITEM60,CO,PLT,BN,DAY,MO,YR,TYPE,SAMP,MAN
-INPUT MEDIUM CARD
N OF CASES 519
COMMENT N OF CASES CARD MUST BE CHANGED FOR EACH RUN.
COMMENT N MUST BE EQUAL TO TOTAL NUMBER OF DATA CASES, NOT JUST
NUMBER OF CASES ADDED.
INPUT FORMAT FIXED (62F1.0,4F2.0,2X,F1.C,F3.C,F4.0)
VAR LABELS CO COMPANY /
PLT PLATOON /
BN BATTALION /
DAY FILL DAY /
MO FILL MONTH /
YR FILL YEAR /
TYPE TYPE OF TRAINING UNIT /
SAMP SAMPLE IDENTIFICATION NUMBER /
MAN INDIVIDUAL IDENTIFICATION NUMBER /
VALUE LABELS CO (1) A (2) B (3) C (4) D (5) E /
BN (13) 13TH BN (15) 15TH BN (16) 16TH BN
(17) 17TH BN (18) 18TH BN (19) 19TH BN
TYPE (1) 11E OSUT (2) 11D CSUT
(3) 11E AIT (4) 11D AIT (5) BCT /
COMMENT * CHANGE VALUE LABELS AS REQUIRED TO FIT LOCAL UNITS *
RECCDE ITEM1 TO ITEM60, CO TO MAN (BLANK=0)
-MISSING VALUES ITEM1 TO ITEM60, CO TO MAN (0)
COUNT NORESP = ITEM1 TO ITEM60 (0)
-DO REPEAT ITEMX = ITEM1 TO ITEM60
IF (NORESP GT 6) ITEMX = 0
-IF (NORESP LE 6 AND ITEMX EQ C) ITEMX = 3
END REPEAT
COMMENT THE NEXT DO REPEAT REVERSES SCORING OF SEVERAL ITEMS SO
LARGER NUMBERS INDICATE MORE POSITIVE ATTITUDES.
DO REPEAT ITEMX = ITEM1 TO ITEM4,ITEM9 TO ITEM11,ITEM18 TO ITEM21
ITEM14,ITEM25,ITEM27,ITEM29,ITEM31,ITEM33 TO ITEM35
ITEM37,ITEM38,ITEM40,ITEM42,ITEM48,ITEM44 TO ITEM46
ITEM50,ITEM52,ITEM55,ITEM56,ITEM60
-RECCDE ITEMX (0=0) (1=5) (2=4) (3=3) (4=2) (5=1)
END REPEAT
PAGE 1

```

```

COMPUTE ARMY = ITEM1 + ITEM6 + ITEM22 + ITEM26 +
ITEM44 + ITEM47 + ITEM48 + ITEM52
COMPUTE OFF = ITEM2 + ITEM7 + ITEM11 + ITEM29 +
ITEM34 + ITEM36 + ITEM39 + ITEM50
COMPUTE NCO = ITEM14 + ITEM18 + ITEM23 + ITEM25 +
ITEM30 + ITEM38 + ITEM46 + ITEM53
COMPUTE TRNG = ITEM12 + ITEM21 + ITEM31 + ITEM32 +
ITEM37 + ITEM42 + ITEM51 + ITEM54
COMPUTE MOTMOR = ITEM8 + ITEM10 + ITEM15 + ITEM35 +
ITEM41 + ITEM45 + ITEM56 + ITEM59
COMPUTE DISCON = ITEM5 + ITEM13 + ITEM16 + ITEM20 +
ITEM28 + ITEM33 + ITEM55 + ITEM57
COMPUTE PERSAD = ITEM4 + ITEM9 + ITEM17 + ITEM19 +
ITEM27 + ITEM43 + ITEM49 + ITEM58
COMPUTE MISC = ITEM3 + ITEM24 + ITEM40 + ITEM60
COMPUTE TOTAL = ARMY+OFF+NCC+TRNG+PCTMCR+DISCON+PERSAD+MISC
IF (MO EQ 1) WEEK = RND((DAY)/7) + 52*(YR-77)
IF (MO EQ 2) WEEK = RND((DAY+31)/7) + 52*(YR-77)
IF (MO EQ 3) WEEK = RND((DAY+59)/7) + 52*(YR-77)
IF (MO EQ 4) WEEK = RND((DAY+90)/7) + 52*(YR-77)
IF (MO EQ 5) WEEK = RND((DAY+120)/7) + 52*(YR-77)
IF (MO EQ 6) WEEK = RND((DAY+151)/7) + 52*(YR-77)
IF (MO EQ 7) WEEK = RND((DAY+181)/7) + 52*(YR-77)
IF (MO EQ 8) WEEK = RND((DAY+212)/7) + 52*(YR-77)
IF (MO EQ 9) WEEK = RND((DAY+243)/7) + 52*(YR-77)
IF (MO EQ 10) WEEK = RND((DAY+273)/7) + 52*(YR-77)
IF (MO EQ 11) WEEK = RND((DAY+304)/7) + 52*(YR-77)
IF (MO EQ 12) WEEK = RND((DAY+335)/7) + 52*(YR-77)
ASSIGN MISSING ARMY TO WEEK (0)
VAR LABELS ARMY ARMY ORGANIZATION /
OFF OFFICERS /
NCO NONCOMMISSIONED OFFICERS /
TRNG TRAINING /
MOTMOR MOTIVATION AND MCRAL /
DISCON DISCIPLINE AND CONTROL /
PERSAD PERSONAL ADJUSTMENT /
MISC MISCELLANEOUS /
TOTAL TOTAL FOR ALL 60 ITEMS /
NORESP NUMBER OF NONRESPONSES /
WEEK FILL WEEKS AFTER 1JAN77 /
COMMENT ****FIRST DESCRIPTIVE ROUTINE OUTPUTS STATISTICS FOR****
****ONLY THE MOST RECENT SAMPLE. SECOND DESCRIPTIVE****
****ROUTINE OUTPUTS STATISTICS FOR ALL SAMPLES TO DATE,****
****OR THE SAMPLE DESIGNATED BY THE *SELECT IF CARD.*****
TASK NAME DESCRIPTIVE STATISTICS FOR TRAMS SAMPLES AND LATEST SAMPLE
COMMENT * USE LISTING TO CHECK ORDER OF INPUT CARDS *
*SELECT IF (SAMP EQ 3)
LIST CASES CASES=100000/ VARIABLES = CC TO MAN,NCRESP,WEEK
COMMENT REMOVING THE LIST CASES AND *SELECT IF CARDS WILL SUPPRESS
LISTING OF ANY DATA FOR A GIVEN RUN. INCLUDING BOTH WILL
ALLOW THE USER TO OBTAIN A LISTING OF THE MOST RECENT SAMPLE
PROVIDED THAT THE NUMBER ON THE SAMP EQ STATEMENT IS CHANGE
TO THE NUMBER OF THE MOST RECENT SAMPLE.
REMOVING ONLY THE *SELECT IF CARD WILL ALLOW THE USER TO LI
ALL DATA FROM ALL SAMPLES INPUT.

```

CCDESCRIPTIVE TOTAL, ARMY TO PERSAD
PAGE 2

STATISTICS 1 TO 8, 10, 11, 13, 14
READ INPUT DATA
COMMENT *PLACE DATA CARDS IN ORDER AFTER READ INPUT DATA CARDS*
<1> ORDER SAMPLES FROM LOWEST TO HIGHEST SAMPLE NUMBER
<2> ORDER CARDS FROM LOWEST TO HIGHEST MAN NUMBER
WITHIN EACH SAMPLE
RAW OUTPUT UNITRAZ
CON DESCRIPTIVE TOTAL, ARMY TO PERSAD
OPTIONS 3
STATISTICS 1, 5, 10, 11
DELETE VARS ITEM1 TO ITEM60, DAY TO TYPE, MAN TO TOTAL
SAVE FILE TRAW
FINISH

END OF DATA
PAGE 3

2. AGGREGATE PROGRAM

FVT01, T0177, CM100000, SPUU. *AGGREGATE*

TASK, TA=, TA=, OS=, TR=, PI=8K.

READING, KOTTAS

READING, TRAMS

READING, AGGREGATE

ATTACH, SPSS, ID=PUBLIC, MR=1.

ATTACH, TRAW, ID=

ATTACH, TRAZ, ID=

REQUEST, TRAG, *PF.

SPSS, D=TRAZ, G=TRAW, A=TRAG.

CATALOG, TRAG, IO=

NUMBERED	YES	01
COMMENT	RUN NUMBER N, DATE GG HERE	02
RUN NAME	AGGREGATE SCORES BY COMPANY, BATTALION, AND WEEK	03
SET FILE	TRAW	04
ADD VARIABLES	ZTOTAL, ZARMY, ZOFF, ZNCG, ZTRNG, ZMTNOR, ZDSCCN, ZPRSAD	05
INPUT MEDIUM	DISK	06
INPUT FORMAT	FIXED(16X, 8F8.5)	07
MISSING VALUES	ZTOTAL TO ZPRSAD(999)	08
RAW OUTPUT UNIT	TRAG	09
AGGREGATE	GROUPVARS=CO, BN, WEEK/	10
	VARIABLES=ZTOTAL TO ZPRSAD/	11
	AGGSTATS=VALIDN, MEAN, SD/RMISS=999	12
OPTIONS	3, 9	13
STATISTICS	2	14
READ INPUT DATA		15
SAVE FILE		16
FINISH		17

END OF DATA

PAGE 1

3. CHARTS PROGRAM

IV101, IOL77, CH100000, SPUU. *TRANS SCATTERPLOT*
 TASK, TA= , TA= , US= , TR= , PI=8K.
 READING, KUTIAS
 READING, TRAMS
 READING, CHARTS
 ATTACH, SPSS, ID=PUBLIC, MR=1.
 ATTACH, TRAG, ID=
 SPSS, D=TRAG.

COMMENT RUN NUMBER N, DATE GO HERE
 RUN NAME SCATTERPLOT
 VARIABLE LIST N, CU, BN, WEEK, ZTOTAL, ZARMY, ZCFF, ZNCO, ZTRNG, ZMTMCR, ZDSCON, ZPRSAD
 INPUT MEDIUM DISK
 COMMENT N OF CASES IS THE NUMBER OF SAMPLES IN THE CURRENT ANALYSIS
 COMMENT *****
 IF THERE IS ANY DOUBT ABOUT THE NUMBER OF CASES IN THE
 CURRENT ANALYSIS, YOU MAY LOOK AT THE OUTPUT OF THE
 AGGREGATE RUN. THE NUMBER OF AGGREGATE GROUPS WILL BE
 EQUAL TO THE NUMBER OF CASES. THE NUMBER OF AGGREGATE
 GROUPS CAN BE QUICKLY DETERMINED BY LOOKING AT THE GROUP=ID
 NUMBER OF THE LAST AGGREGATE GROUP ON THE PRINTOUT.

N OF CASES 13
 COMMENT FORMAT IN WHICH THE AGGREGATE VARIABLES ARE OUTPUT IS
 SPECIFIED AT THE END OF THE AGGREGATE PRINTOUT. CHECK
 PRINTOUT OF AGGREGATE RUN FOR THIS SAMPLE AND COMPARE
 THE FORMAT IN WHICH
 TRAG WAS WRITTEN WITH THE INPUT FORMAT FOR THIS JOB.
 ONLY THE MEANS OF THE AGGREGATE OUTPUT WILL BE READ INTO THIS
 JOB AS VARIABLES. IF THE OUTPUT AND INPUT FORMATS DO
 NOT MATCH, CHANGE THE INPUT FORMAT FOR THIS JOB.

INPUT FORMAT FIXED(8X, F8.0, 3F12.0, 8(/ 8X, F14.4))

COMPUTE TOTAL=ZTOTAL*SQRT(N)

COMPUTE ARMY=ZARMY*SQRT(N)

COMPUTE OFF=ZOFF*SQRT(N)

COMPUTE NCO=ZNCO*SQRT(N)

COMPUTE TRNG=ZTRNG*SQRT(N)

COMPUTE MTMCR=ZMTMCR*SQRT(N)

COMPUTE DSCON=ZDSCON*SQRT(N)

COMPUTE PRSAD=ZPRSAD*SQRT(N)

VAR LABELS CU, COMPANY/
 BN, BATTALION/
 WEEK, WEEK SAMPLE TAKEN/
 TOTAL, TOTAL ATTITUDE/
 ARMY, ATTITUDE TOWARD ARMY/
 OFF, ATTITUDE TOWARD OFFICERS/
 NCO, ATTITUDE TOWARD NCOs/
 TRNG, ATTITUDE TOWARD TRAINING/
 MTMCR, MOTIVATION AND MORALE/
 DSCON, DISCIPLINE AND CONTROL/
 PRSAD, PERSONAL ADJUSTMENT

COMMENT SCATTERGRAM CARDS PUNCHED SO INDIVIDUAL VARIABLES CAN
 BE REMOVED IF DESIRED. NOTE THAT REMOVING OR ADDING A
 VARIABLE WILL REQUIRE A FORMAT CHANGE.

COMMENT IF YOU DO NOT WISH TO OBTAIN A LISTING OF ALL QUESTIONS

PAGE 1

ON ALL PRINTOUTS, SIMPLY REMOVE ALL CARDS FROM THE			
DOCUMENT CARD TO THE LAST CARD BEFORE THE PRINT FORMATS CARD.			
DOCUMENT	FT-KNOX TRAINEE ATTITUDE SURVEY ITEMS	0	1
	* ARMY ORGANIZATION *	1	1
1.	IN GENERAL, HOW WELL DO YOU THINK THE ARMY IS RUN?	1	2
	<5> EXTREMELY WELL <4> VERY WELL <3> PRETTY WELL	1	3
	<2> NOT VERY WELL <1> VERY POORLY	1	4
6.	TO WHAT EXTENT ARE PROMOTIONS IN THE ARMY BASED ON	1	5
	ABILITY?		6
	<1> ONLY SLIGHTLY <2> SOMEWHAT <3> QUITE A BIT	1	7
	<4> A GREAT DEAL <5> ALMOST ENTIRELY	1	8
22.	DIES THE ARMY DO WHAT IS POSSIBLE TO PUT MEN IN THE	1	9
	JOBS FOR WHICH THEY ARE MOST SUITED?	1	10
	<1> HARDLY ANYTHING IS DONE <2> NOT MUCH IS DONE	1	11
	<3> SOME THINGS ARE DONE <4> MOST THINGS ARE DONE	1	12
	<5> EVERYTHING POSSIBLE IS DONE	1	13
26.	HOW GOOD IS THE EQUIPMENT IN THE ARMY?	1	14
	<1> VERY POOR <2> NOT VERY GOOD <3> PRETTY GOOD	1	15
	<4> VERY GOOD <5> EXCELLENT	1	16
44.	HOW HAVE YOUR MILITARY EXPERIENCES CHANGED YOUR	1	17
	RESPECT FOR THE ARMY?	1	18
	<5> I HAVE MUCH MORE RESPECT <4> I HAVE SOMEWHAT	1	19
	MORE RESPECT <3> I HAVE NO LESS RESPECT <2> I HAVE	1	20
	SOMEWHAT LESS RESPECT <1> I HAVE MUCH LESS RESPECT	1	21
47.	HOW HAVE YOUR MILITARY EXPERIENCES CHANGED YOUR	1	22
	INTEREST IN MAKING A CAREER OF THE ARMY?	1	23
	<1> I HAVE MUCH LESS INTEREST <2> I HAVE SOME LESS	1	24
	INTEREST <3> I HAVE NO LESS INTEREST <4> I HAVE MORE	1	25
	INTEREST <5> I HAVE MUCH MORE INTEREST	1	26
48.	WHAT IS YOUR OPINION OF ARMY RULES AND REGULATIONS?	1	27
	<5> ALMOST ALL ARE NECESSARY <4> MOST ARE NECESSARY	1	28
	<3> MANY ARE NECESSARY <2> SOME ARE NECESSARY	1	29
	<1> ONLY A FEW ARE NECESSARY	1	30
52.	HOW HAVE YOUR MILITARY EXPERIENCES AFFECTED YOUR	1	31
	CONFIDENCE IN THE ARMY'S ABILITY TO DEFEND OUR COUNTRY?	1	32
	<5> I HAVE MUCH MORE CONFIDENCE <4> I HAVE MORE	1	33
	CONFIDENCE <3> MY CONFIDENCE DID NOT CHANGE <2> I HAVE	1	34
	LESS CONFIDENCE <1> I HAVE MUCH LESS CONFIDENCE	1	35
	* OFFICERS *	2	1
2.	HOW WELL DO YOUR OFFICERS UNDERSTAND THE NEED AND	2	2
	PROBLEMS OF THEIR MEN?	2	3
	<5> EXTREMELY WELL <4> VERY WELL <3> PRETTY WELL	2	4
	<2> NOT VERY WELL <1> VERY POORLY	2	5
7.	HOW MUCH RESPECT DO YOU HAVE FOR YOUR OFFICERS?	2	6
	<1> HARDLY ANY <2> A LITTLE BIT <3> SOME	2	7
	<4> A FAIR AMOUNT <5> A GREAT DEAL	2	8
11.	WHEN YOUR OFFICERS GIVE YOU SOMETHING TO DO, DO THEY	2	9
	TELL YOU ENOUGH ABOUT IT SO YOU CAN DO A GOOD JOB?	2	10
	<5> ALWAYS ENOUGH <4> USUALLY ENOUGH <3> SOMETIMES	2	11
	ENOUGH <2> OFTEN NOT ENOUGH <1> ALWAYS NEVER ENOUGH	2	12
29.	CAN YOU TRUST YOUR OFFICERS NOT TO GET THINGS ALL	2	13
	FOULED UP?	2	14
	<5> ALMOST ALWAYS <4> MOST OF THE TIME <3> MUCH OF	2	15
	THE TIME <2> ONLY SOMETIMES <1> USUALLY NOT	2	16
34.	DO YOUR OFFICERS SHOW FAVORITISM TO SOME MEN IN YOUR	2	17
	UNIT?	2	18

	<5> ALMOST NEVER <4> ONCE IN A WHILE <3> NOT USUALLY	2 19
	<2> SOMETIMES <1> QUITE OFTEN	2 20
36.	HOW MUCH ARE YOUR OFFICERS INTERESTED IN YOUR WELFARE	2 21
	AND PERSONAL PROBLEMS ?	2 22
	<1> VERY UNINTERESTED <2> NOT MUCH INTERESTED	2 23
	<3> SOMEWHAT INTERESTED <4> VERY MUCH INTERESTED	2 24
	<5> EXTREMELY INTERESTED	2 25
39.	HOW WELL DO THE OFFICERS WHO ARE IN CHARGE OF YOUR	2 26
	UNIT REALLY KNOW THEIR STUFF ?	2 27
	<1> NOT WELL AT ALL <2> NOT VERY WELL <3> PRETTY WELL	2 28
	<4> VERY WELL <5> EXTREMELY	2 29
50.	HOW IMPORTANT TO YOU ARE YOUR OFFICERS OPINIONS OF	2 30
	YOUR PERFORMANCE AS A SOLDIER ?	2 31
	<5> EXTREMELY IMPORTANT <4> VERY IMPORTANT	2 32
	<3> SOMEWHAT IMPORTANT <2> NOT VERY IMPORTANT	2 33
	<1> VERY UNIMPORTANT	2 34
	* NONCOMMISSIONED OFFICERS *	3 1
14.	HOW WELL DO YOUR NCOs UNDERSTAND THE NEEDS AND	3 2
	PROBLEMS OF THEIR MEN ?	3 3
	<5> EXTREMELY WELL <4> VERY WELL <3> FAIRLY WELL	3 4
	<2> NOT TOO WELL <1> VERY POORLY	3 5
18.	CAN YOU TRUST YOUR NCOs NOT TO GET THINGS ALL	3 6
	FOULED UP ?	3 7
	<5> ALMOST ALWAYS <4> MOST OF THE TIME <3> MUCH OF	3 8
	THE TIME <2> ONLY SOMETIMES <1> USUALLY NOT	3 9
23.	HOW MUCH RESPECT DO YOU HAVE FOR YOUR NCOs ?	3 10
	<1> HARDLY ANY <2> A LITTLE BIT <3> SOME	3 11
	<2> A FAIR AMOUNT <1> A GREAT DEAL	3 12
25.	WHEN YOUR NCOs GIVES YOU SOME SOMETHING TO DO , DO	3 13
	THEY TELL YOU ENOUGH ABOUT IT SO THAT YOU CAN DO A	3 14
	GOOD JOB ?	3 15
	<5> ALMOST ALWAYS <4> USUALLY ENOUGH <3> SOMETIMES	3 16
	ENOUGH <2> OFTEN NOT ENOUGH <1> ALMOST NEVER ENOUGH	3 17
30.	HOW WELL DO THE NCOs IN CHARGE OF YOUR WORK REALLY	3 18
	KNOW THEIR STUFF ?	3 19
	<1> NOT WELL AT ALL <2> NOT VERY WELL <3> PRETTY WELL	3 20
	<4> VERY WELL <5> EXTREMELY WELL	3 21
38.	DO YOUR NCOs SHOW ANY FAVORITISM TO SOME MEN IN YOUR	3 22
	UNIT ?	3 23
	<5> ALMOST NEVER <4> ONCE IN A WHILE <3> NOT USUALLY	3 24
	<2> SOMETIMES <1> QUITE OFTEN	3 25
46.	HOW IMPORTANT TO YOU ARE YOUR NCOs OPINIONS OF YOUR	3 26
	PERFORMANCE AS A SOLDIER ?	3 27
	<5> EXTREMELY IMPORTANT <4> VERY IMPORTANT	3 28
	<3> SOMEWHAT IMPORTANT <2> NOT VERY IMPORTANT	3 29
	<1> VERY IMPORTANT	3 30
53.	HOW MUCH ARE YOUR NCOs INTERESTED IN YOUR WELFARE	3 31
	AND PERSONAL PROBLEMS ?	3 32
	<1> VERY UNINTERESTED <2> NOT MUCH INTERESTED	3 33
	<3> SOMEWHAT INTERESTED <4> VERY MUCH INTERESTED	3 34
	<5> EXTREMELY INTERESTED	3 35
	* TRAINING *	4 1
12.	HOW MUCH OF THE TRAINING YOU HAVE BEEN GETTING IS	4 2
	NEEDED TO MAKE MEN GOOD SOLDIERS ?	4 3
	<1> MUCH IS NOT NEEDED <2> ABOUT HALF IS NOT NEEDED	4 4
	<3> SOME IS NOT NEEDED <4> MOST IS NEEDED <5> ALMOST	4 5

ALL IS NEEDED			4	0
21.	HOW TOUGH IS THE PHYSICAL TRAINING PROGRAM ?		4	7
	<5> VERY EASY <4> FAIRLY EASY <3> NOT VERY EASY		4	8
	<2> PRETTY TOUGH <1> MUCH TOO TOUGH		4	9
31.	HOW MUCH MORE TRAINING DO YOU THINK YOU NEED TO BE		4	10
	READY FOR COMBAT ?		4	11
	<5> NOT MUCH MORE <4> A LITTLE MORE <3> SOME MORE		4	12
	<2> MUCH MORE <1> VERY MUCH MORE		4	13
32.	DURING TRAINING AND DRILL PERIODS DO YOU HAVE TO		4	14
	SPEND TOO MUCH TIME WAITING AROUND AND DOING NOTHING		4	15
	<1> ALMOST ALWAYS <2> VERY OFTEN <3> SOMETIMES		4	16
	<4> NOT VERY OFTEN <5> ALMOST NEVER		4	17
37.	HOW WELL DO YOUR TRAINING INSTRUCTORS KNOW HOW TO		4	18
	TEACH ?		4	19
	<5> EXTREMELY WELL <4> VERY WELL <3> PRETTY WELL		4	20
	<2> NOT VERY WELL <1> VERY POORLY		4	21
42.	HOW GOOD IS THE TRAINING YOU ARE GETTING ?		4	22
	<5> EXCELLENT <4> VERY GOOD <3> PRETTY GOOD		4	23
	<2> NOT VERY GOOD <1> VERY POOR		4	24
51.	SHOULD COMBAT TRAINING BE MADE EASIER OR HARDER		4	25
	THE IT IS ?		4	26
	<1> MUCH EASIER <2> SOMEWHAT EASIER <3> NOT ANY HARDER		4	27
	<4> A LITTLE HARDER <5> MUCH HARDER		4	28
54	HOW SATISFIED ARE YOU WITH THE TRAINING YOU HAVE BEEN		4	29
	GETTING ?		4	30
	<1> VERY DISSATISFIED <2> NOT VERY DISSATISFIED		4	31
	<3> MOSTLY SATISFIED <4> VERY SATISFIED <5>		4	32
	EXTREMELY SATISFIED		4	33
* MOTIVATION AND MORALE *			5	1
8.	HOW MANY MEN IN YOUR UNIT WANT TO DO A GOOD JOB IN		5	2
	TRAINING ?		5	3
	<1> FEW OF THEM <2> SOME OF THEM <3> MANY OF THEM		5	4
	<4> MOST OF THEM <5> ALMOST ALL OF THEM		5	5
10.	DO YOU FEEL THAT WHAT YOU ARE DOING IN THE ARMY IS		5	6
	WORTHWHILE ?		5	7
	<5> IT IS EXTREMELY WORTHWHILE <4> IT IS VERY		5	8
	WORTHWHILE <3> IT IS MOSTLY WORTHWHILE <2> IT IS		5	9
	SOMEWHAT WORTHWHILE <1> IT ISN'T VERY WORTHWHILE		5	10
15.	ON THE WHOLE HOW IS THE MORALE IN YOUR COMPANY ?		5	11
	<1> VERY LOW <2> LOW <3> JUST SO SO <4> HIGH		5	12
	<5> VERY HIGH		5	13
35.	HAS THE MORALE IN YOUR COMPANY GOTTEN BETTER AS TIME		5	14
	GOES BY ?		5	15
	<5> VERY MUCH SO <4> PRETTY MUCH <3> ONLY A LITTLE		5	16
	<2> NOT VERY MUCH <1> NOT AT ALL		5	17
41.	DOES IT MATTER TO YOU HOW WELL YOU DO IN THE ARMY ?		5	18
	<1> VERY LITTLE <2> NOT VERY MUCH <3> SOMEWHAT		5	19
	<4> QUITE A BIT <5> VERY MUCH		5	20
45.	HOW MANY MEN IN YOUR UNIT WILL MAKE GOOD SOLDIERS ?		5	21
	<5> ALMOST ALL OF THEM <4> MOST OF THEM <3> MANY		5	22
	OF THEM <2> SOME OF THEM <1> FEW OF THEM		5	23
56.	DO YOU TRY TO DO YOUR BEST ?		5	24
	<5> ALMOST ALWAYS <4> MOST OF THE TIME <3> MUCH OF		5	25
	THE TIME <2> SOMETIMES <1> NOT OFTEN		5	26
59.	ARE YOU GETTING A CHANCE TO USE YOUR SKILL AND		5	27
	EXPERIENCE ?		5	28

	<1> HARDLY ANY CHANCE <2> NOT MUCH OF A CHANCE <3> A	5	2
	PRETTY GOOD CHANCE <4> A VERY GOOD CHANCE <5> AN	5	3
	EXCELLENT CHANCE		
	* DISCIPLINE AND CONTROL *	6	
5.	DO YOU THINK THERE IS TOO MUCH UNNECESSARY	6	
	HARASSMENT IN THE ARMY ?	6	
	<1> MUCH TOO MUCH <2> SOMEWHAT TOO MUCH <3> A LITTLE	6	
	TOO MUCH <4> NOT TOO MUCH <5> HARDLY ANY	6	
13.	HOW OFTEN DO MEN IN YOUR UNIT GET PUNISHED FOR	6	
	SOMETHING THAT ISN'T THEIR FAULT ?	6	
	<1> VERY OFTEN <2> QUITE OFTEN <3> SOMETIMES	6	
	<4> NOT VERY OFTEN <5> ALMOST NEVER	6	
16.	HOW IS THE MILITARY CONTROL AND DISCIPLINE IN YOUR	6	1
	UNIT ?	6	1
	<1> MUCH TOO STRICT <2> A LITTLE TOO STRICT <3> ABOUT	6	1
	RIGHT <4> A LITTLE TOO LOOSE <5> MUCH TOO LOOSE	6	1
20.	IS DISCIPLINE NECESSARY TO GET MEN TO DO THINGS	6	1
	THE RIGHT WAY ?	6	1
	<5> VERY NECESSARY <4> PRETTY NECESSARY <3> SOMEWHAT	6	1
	NECESSARY <2> NOT VERY NECESSARY <1> NOT AT ALL	6	1
	NECESSARY	6	1
28.	IS THE DISCIPLINE YOU GET IN THE ARMY GOOD FOR YOU ?	6	1
	<1> VERY BAD <2> NOT VERY GOOD <3> PRETTY GOOD	5	2
	<4> VERY GOOD <5> EXTREMELY GOOD	6	2
33.	HOW OFTEN IN THE ARMY ARE A LOT OF MEN MADE TO	6	2
	SUFFER BECAUSE ONE OR TWO MEN FOUL UP ?	6	2
	<5> ALMOST NEVER <4> NOT VERY OFTEN <3> SOMETIMES	6	2
	<2> QUITE OFTEN <1> VERY OFTEN	6	2
55.	ARE YOU LIKELY TO GET IN TROUBLE IF YOU TRY TO	6	2
	THINK FOR YOURSELF IN THE ARMY ?	6	2
	<5> NOT AT ALL LIKELY <4> NOT VERY LIKELY <3>	6	2
	SOMEWHAT LIKELY <2> PRETTY LIKELY <1> VERY LIKELY	6	2
57.	ARE MEN IN THE ARMY TREATED WITH PROPER RESPECT	6	3
	REGARDLESS OF THEIR RANK OR JOB ?	6	3
	<1> ALMOST NEVER <2> NOT VERY OFTEN <3> SOMETIMES	6	3
	<4> USUALLY <5> ALMOST ALWAYS	6	3
	* PERSONAL ADJUSTMENT *	7	
4.	ARE YOU EVER WORRIED AND UPSET ?	7	
	<5> I AM NEVER WORRIED AND UPSET <4> I AM HARDLY EVER	7	
	WORRIED AND UPSET <3> I AM SOMETIMES WORRIED AND UPSET	7	
	<2> I AM OFTEN WORRIED AND UPSET <1> I AM USUALLY	7	
	WORRIED AND UPSET	7	
9.	HOW DO YOU FEEL ABOUT LIFE IN THE ARMY ?	7	
	<5> VERY SATISFIED <4> FAIRLY SATISFIED <3> SOMEWHAT	7	
	SATISFIED <2> NOT VERY SATISFIED <1> VERY	7	
	DISSATISFIED	7	1
17.	HOW DO YOU FEEL MOST OF THE TIME IN GOOD SPIRITS OR	7	1
	IN LOW SPIRITS ?	7	1
	<1> I AM USUALLY IN LOW SPIRITS <2> I AM OFTEN IN LOW	7	1
	SPIRITS <3> MY FEELINGS CHANGE BACK AND FORTH <4>	7	1
	I AM OFTEN IN GOOD SPIRITS <5> I AM USUALLY IN GOOD	7	1
	SPIRITS	7	1
19.	HAVE YOU GOTTEN OVER YOUR FEARS ABOUT ARMY IN THE	7	1
	ARMY ?	7	1
	<5> ALMOST ALL OF THEM <4> MOST OF THEM <3> MANY	7	1
	OF THEM <2> SOME OF THEM <1> FEW OF THEM	7	2

27.	IF YOU WERE OFFERED AN HONORABLE DISCHARGE TO DAY	7	2
	WOULD YOU TAKE IT ?	7	2
	<5> I AM SURE I WOULD NOT <4> YES BUT ONLY IF I	7	2
	COULD GET A GOOD JOB <3> I AM NOT SURE WHAT I	7	2
	WOULD DO <2> YES IF I COULD GET ANY KIND OF A JOB	7	2
	<1> I'D TAKE IT NO MATTER WHAT	7	2
43.	HOW MUCH CONCERN DOES THE ARMY HAVE FOR PROBLEMS	7	2
	OF THE INDIVIDUAL SOLDIER ?	7	2
	<1> HARDLY ANY CONCERN <2> LITTLE CONCERN <3> SOME	7	2
	CONCERN <4> MUCH CONCERN <5> VERY GREAT CONCERN	7	3
49.	DO YOU FEEL THAT LIFE IN THE ARMY HAS BEEN GETTING	7	3
	HARDER AND HARDER FOR YOU ?	7	3
	<1> VERY MUCH SO <2> PRETTY MUCH <3> ONLY A LITTLE	7	3
	<4> NOT VERY MUCH <5> NOT AT ALL	7	3
58.	IN GENERAL HOW DO YOU LIKE THE ARMY ?	7	3
	<1> I DISLIKE IT A LOT <2> I DISLIKE IT SOME <3> ITS	7	3
	NOT SO BAD <4> I LIKE ALL RIGHT <5> I LIKE IT VERY	7	3
	MUCH	7	3
	* MISCELLANEOUS *	0	
3.	HAVE YOU GOTTEN THE PRAISE YOU DESERVE FOR YOUR	8	
	IMPROVEMENT IN TRAINING SO FAR ?	8	
	<5> ALL I DESERVE AND MORE <4> JUST WHAT I DESERVE	8	
	<3> NOT QUITE WHAT I DESERVE <2> LESS THEN I DESERVE	8	
	<1> MUCH LESS THEN I DESERVE	8	
24.	DO YOUR NCOS ACT ANGRY AND MEAN WHEN MEN MAKE	8	
	MISTAKES ?	8	
	<1> ALMOST ALWAYS <2> MOST OF THE TIME <3> SOMETIMES	8	
	<4> NOT OFTEN <5> HARDLY EVER	8	1
40.	DO YOU THINK YOU WILL BE SATISFIED WITH YOUR FUTURE	8	1
	JOB IN THE ARMY ?	8	1
	<5> EXTREMELY SATISFIED <4> VERY SATISFIED <3> FAIRLY	8	1
	SATISFIED <2> NOT VERY SATISFIED <1> VERY	8	1
	UNSATISFIED	8	1
60.	HOW MUCH DOES THE COUNSELING YOU GET FROM YOUR NCOS		
	HELP YOU ?		
	<5> VERY MUCH <4> QUITE A BIT <3> SOMEWHAT <2> NOT		
	VERY MUCH <1> HURTS NOT HELPS		
PRINT FORMATS	TOTAL, ARMY, OFF, NCO, TRNG, MTMOR, DSCCN, PRSAD (2)		
LIST CASES	CASES = 100000/VARIABLES = CO, BN, WEEK, TOTAL, ARMY, OFF,		
	NCO, TRNG, MTMOR, DSCCN, PRSAD		
SCATTERGRAM	TOTAL(-7.71, 7.71) WITH WEEK(1, 101)/		
	ARMY(-7.71, 7.71) WITH WEEK(1, 101)/		
	OFF(-7.71, 7.71) WITH WEEK(1, 101)/		
	NCO(-7.71, 7.71) WITH WEEK(1, 101)/		
	TRNG(-7.71, 7.71) WITH WEEK(1, 101)/		
	MTMOR(-7.71, 7.71) WITH WEEK(1, 101)/		
	DSCCN(-7.71, 7.71) WITH WEEK(1, 101)/		
	PRSAD(-7.71, 7.71) WITH WEEK(1, 101)		
OPTIONS	6, 8		
STATISTICS	ALL		
COMMENT	*****		
	*****INTERPRETATION OF CONTROL CHARTS*****		
	THE EIGHT CHARTS PRESENT STANDARDIZED INDICES		
	FOR TOTAL ATTITUDE, AND SEVEN COMPONENTS OF ATTITUDE		
	RELATING TO IMPORTANT ASPECTS OF THE TRAINING ENVIRON-		
	MENT. IN EACH CHART, THE ATTITUDE INDEX IS SCALED ON		

SCALED ON THE HORIZONTAL AXIS. EACH POINT REPRESENTS THE AVERAGE ATTITUDE OF APPROXIMATELY 40 TRAINEES SAMPLED AT RANDOM FROM ONE COMPANY.

THE TWO HORIZONTAL DASHED LINES ACROSS THE MIDDLE OF EACH CHART ARE THE 99 PERCENT CONTROL LIMITS FOR THE ATTITUDE INDEX. FOR EVERY 100 POINTS PLOTTED, 99 OF THEM ARE EXPECTED TO FALL BETWEEN THE CONTROL LIMITS, AND ONLY ABOUT 1 POINT SHOULD FALL ABOVE OR BELOW THE CONTROL LIMITS.

AN INDIVIDUAL POINT OUTSIDE THE CONTROL LIMITS INDICATES AN UNUSUALLY LOW OR HIGH LEVEL OF ATTITUDE IN THAT PARTICULAR COMPANY. A CLUSTER OF POINTS OUTSIDE THE LIMITS DURING ONE PERIOD OF TIME INDICATES THAT SOME UNUSUAL INFLUENCE OCCURED IN THAT PERIOD. CLUSTERS OF HIGH OR LOW POINTS WHICH OCCUR PERIODICALLY SUGGEST THE OPERATION OF SOME SEASONAL OR OTHER RECURRENT INFLUENCE. MANY CAUSAL FACTORS MAY CONTRIBUTE TO HIGH OR LOW POINTS, AND IT IS ADVISABLE TO BE CAUTIOUS IN PLACING AN INTERPRETATION ON SUCH POINTS.

THE STATISTICS PRINTED WITH EACH CHART HELP TO DETERMINE WHETHER OR NOT A SYSTEMATIC CHANGE IN ATTITUDE IS TAKING PLACE, DESCRIBABLE BY A LINEAR TREND ACROSS WEEKS. IF THE PROBABILITY VALUE LISTED AFTER THE WORD 'SIGNIFICANCE' IS LESS THAN 0.01, THERE IS ADEQUATE STATISTICAL EVIDENCE FOR THE OCCURANCE OF A LINEAR TREND. THE VALUES GIVEN FOR THE SLOPE AND INTERCEPT MAY BE USED TO PLOT THE TREND LINE ON THE CHART.

FINISH

END OF DATA

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4. AUDIT PROGRAM

(This program is specific to the DPFO computer at Leavenworth.
It must be revised, or may not even be necessary on other systems.)

TVT01,10177,CH100000,SPUU.

TASK,TA= ,TA= ,IS= ,TR= ,PI=OK.

HEADING,KOTTAS

HEADING,TRANS

HEADING,AUDIT

ATTACH,TRAW,ID=

ATTACH,TRAZ,ID=

ATTACH,TRAG,ID=

PURGE,TRAW,IC=

PURGE,TRAZ,RB=1.

PURGE,TRAG,IC=

AUDIT,ID=

W

V

APPENDIX B

ADAPTATION TO TRAINING DATA

Consider the hypothetical case in which TRAMS is adapted to provide control statistics on training data. Say, for example, that data are collected on training ten tasks and further that the scores are continuous (not GO/NO-GO). Each trainee's scores on each of the ten tasks as well as descriptive data are punched onto cards in some format compatible with the maximum scores on each task. For example, if scores on the first three tasks can range from 0 to 100 (three digits), and scores on the next seven tasks can range from 0 to 10 (two digits), each individual's score on the first three tasks will be punched (right justified) in each three successive columns, and scores on the next seven tasks will be punched in subsequent two-column fields. To aid data punching, the user should carefully lay out a card format sheet as has been done for the attitude data in Appendix E of this report.

If data for a given individual is missing or otherwise unavailable, a missing data code should be punched in the columns for that task. The code selected for missing data should be one that cannot occur in the data. Choice of a missing data code for training data depends on whether or not zero is a legitimate score. If zero cannot occur, as in the attitude scale in this report, it is an ideal indicator for missing data. However, if zero is a possible score, another missing data code such as a string of "9"s must be used. Given the hypothetical training scores above, one

might select missing data codes of 999 for the first three tasks and 99 for the next seven tasks.

A number of changes would need to be made to the Summary program in order to analyze the hypothetical training data. First, the VARIABLE LIST card must be changed. The VARIABLE LIST card simply contains the variable names (limited to eight alphanumeric characters) for every variable (score, identifying number, etc.) read off of the data deck. Suppose that the Battalion, Company, and Platoon data were irrelevant (i.e., for some reason the training manager was going to combine all data to determine trends within the entire training installation), and only one sample was going to be taken on each individual, such as a final qualifying score. In this situation the VARIABLE LIST card might read:

VARIABLE LIST __ ITEM 1 TO ITEM 10, DAY, MO, YR, SAMP, TYPE¹

allowing for scores on ten tasks and data on the day, month and year the sample was taken, the sample number, and the type of people being surveyed (OSUT, AIT, etc.). Second, the N OF CASES card would have to be changed to reflect the number of individuals sampled to that time. Third, the INPUT FORMAT card would have to be changed to reflect the format in which

¹The symbol "__" indicates a blank on the SPSS card, and should not actually be punched on the card.

the data cards were punched. SPSS uses a standard FORTRAN format, so that for the hypothetical case above, the card might read:

INPUT FORMAT _ _ _ FIXED (3F3.0,10F2.0,F3.0,F1.0).

Where the first three variables (Items 1-3) are in three columns each, the next ten variables (Items 4-10, Day, Month, and Year) are in two columns each, the next variable (Sample) takes up three columns, and the last variable (Type) is coded in one column.

The VAR LABELS cards simply contain the full words or phrases that were abbreviated in the VARIABLE LIST card, and should be changed or deleted as needed. The VALUE LABELS cards serve to identify the numbers used to code different levels of variables, and should be changed as needed.

Since data from some tasks may be missing, with 999 or 99 punched to indicate missing data in the 10 tasks, MISSING VALUES cards are necessary. A missing value must also be specified for the other information on each card such as date of sample, etc. The cards might read:

MISSING VALUES _ ITEM 1 TO ITEM 3 (999)/
ITEM 4 TO ITEM 10 (99)/
DAY TO TYPE (0)

allowing zero to serve as a missing score on the last five variables.

The program then goes through a procedure of counting missing scores and either (a) discarding the data for any individual for whom scores are missing on a large proportion of items or (b) setting an arbitrary response on all no-response items if only a small proportion of items have missing data. Setting the criterion for proportion of scores needed from each person to include them in the analysis deserves some attention. If practical, one should collect some data and determine statistically how many missing scores constitute an abnormally high proportion of missing data for each individual. With the coding for no response in our hypothetical training data and a criterion of needing scores on 70% of all tasks to include an individual in the analysis, the eight cards following the MISSING VALUES card would read:

```

COUNT _____ NORESP = ITEM 1 TO ITEM 3 (999)
COUNT _____ NORESP = ITEM 4 TO ITEM 10 (99)
DO REPEAT _____ ITEMX = ITEM 1 TO ITEM 3
IF _____ (NORESP GT 3) ITEMX = 999
END REPEAT

DO REPEAT _____ ITEMX = ITEM 4 TO ITEM 10
IF _____ (NORESP GT 3) ITEMX = 99
END REPEAT

```

The user may wish to set all non-responses to some arbitrary value such as 50 on the first three items and 5 on the next seven items, analagous to

the procedure in the attitude monitoring program. This procedure would require some modification of the above cards, and will not be discussed further.

Next, the TRAMS procedure combines items to provide scores on several scales within the attitude questionnaire. If the user wishes to combine the scores from several tasks, and create one or more variables (such as a total score), the combination can be done at this point. For example, the user may wish to look at the total of the first three tasks, the total of the last seven tasks, and the overall total:

COMPUTE _____ VAR13 = ITEM 1+ITEM 2+ITEM 3

COMPUTE _____ VAR410 = ITEM 4+ITEM 5+ITEM 6+ITEM 7+ITEM 8+
ITEM 9+ITEM 10

COMPUTE _____ TOTAL = VAR13 + VAR410

Weighted sums or various combinations of scores are easily obtained. However, weighting and performing any combination of variables must receive careful thought and have a reasonable a priori rationale. Finally, expanded variable labels can be assigned to the variables created with the COMPUTE cards, as is done in the attitude monitoring program.

The Aggregate program takes input from a file of Z scores (TRAZ) established by the Summary program. The format in which the Z scores were written is printed at the bottom of the Summary program output and discussed

in the SPSS manual, and can readily be inserted into the INPUT FORMAT statement of the Aggregate program. These variables must be given names in the ADD VARIABLES statement that are distinct from preceding names.

In most cases, the only other change the user may want to make in the Aggregate program would be on the first AGGREGATE procedure card if the user wishes to group scores over some level other than company. For example, if the user desires data on individual platoons within a company over time, the first AGGREGATE procedure card would read:

```
AGGREGATE _ _ _ _ _ GROUPVARS = CO, PLT, BN, WEEK
```

A description of the AGGREGATE card can be found on page 205 of the SPSS manual.

The user must change the Charts program so the variables listed and used are consistent with those used in the Aggregate programs. The format of the variables stored on disk for input into the Charts program are indicated near the end of the printout of the Aggregate program.

APPENDIX C

LISTING OF PROGRAM TO ASSESS ATTITUDE CHANGE OVER INDIVIDUALS

This program can easily be interfaced with the Aggregate and Charts programs of TRAMS by simply assuring that the file names, both in the programs and on the control cards, are consistent. Using this program requires that the data cards for each subject be placed together in the data deck, with the first sample coming first. If each person's data cards do not come together, the results will be invalid. If an error does occur in placing both cards from each person together, the data listing in the Summary program will report the identification number of any second card not matching the card containing data from the first sample. For example, if the second data cards for individuals 0001 and 0002 were accidentally switched, the data listing would appear as follows:

```
CASE 01  SUBFILE XXXX  REPORT. = 0002
      01  0001.      X      X      XX  XX
CASE 02  SUBFILE XXXX  REPORT. = 0001
      02  0002.      X      X      XX  XX
```

The number following the report is the actual identification number of the second data card. This is followed on the next line by the number that should have occurred. If such errors in ordering the data cards occur, the program will stop after reporting all errors and no files will be output.

This program makes use of several features of versions 6.5 and 7.0 of SPSS that are not discussed in the 1975 SPSS manual. These are:

(a) LAG (see SPSS Version 6.5 Update, p. 6). "The LAG function replaces the value of a variable with the value of the previous case." In this program the lag function is used to compare card numbers across successive cards from a given subject.

(b) REPORT (see SPSS Version 7.0 Update, p. 13). The REPORT variable is used as a data-checking procedure that prints data meeting certain conditions; in this program the condition for reporting is a failure of cards supposed to be from a single subject to match with respect to identification numbers.

(c) STOP (see SPSS Version 7.0, p. 13 also). The STOP variable is also used for data-checking, but unlike the REPORT variable, the STOP variable stops the processing upon encountering a specified condition, rather than simply reporting a variable upon encountering a specified condition and then continuing with the program. In this program, the STOP variable is used to check for a flag set upon finding any failures to match identification numbers for data cards supposed to be from a single person.

```

TVT01,T1000,CH100000,SPUU,-----**TRANS-ATTITUDE-CHANGE-
TASK,TN=,TA=,DS=,TR=,PI=KOTTAS.
HEADING,KOTTAS
HEADING,TRANS
HEADING,SUMMARY
ATTACH,SPSS,ID=PUBLIC,MR=1.
REQUEST,CRAZ,PF.
REQUEST,CRAH,PF.
SPSS,A=CRAZ,S=CRAW.
CATALOG,CRAZ,ID=
CATALOG,CRAW,ID=
W
COMMENT-----PROGRAM-TO-ASSESS-ATTITUDE-CHANGE-OVER-TRAINING
COMMENT-----CARDS MUST BE ARRANGED SO ALL CARDS FROM ONE INDIVIDUAL
ARE TOGETHER, WITH THE CARD FROM THE FIRST SAMPLE COMING
FIRST.
FILE-NAME-----CRAW
COMMENT-----RUN NUMBER N, DATE GO HERE
COMMENT-----CHANGE RUN NUMBER AND DATE FOR EACH RUN
NUMBERED-----YES
RUN-NAME-----COND-SCRIPTIVE-STATS
VARIABLE LIST IT101 TO IT160, DAY1, MO1, YR1, SAMP1, MAN1
IT201 TO IT260, DAY2, MO2, YR2, SAMP2, MAN2
INPUT MEDIUM CARD
N-OF-CASES-----50
COMMENT-----N OF CASES CARD MUST BE CHANGED FOR EACH RUN
COMMENT-----N MUST EQUAL THE NUMBER OF INDIVIDUALS IN THE SAMPLE,
WHICH SHOULD BE THE NUMBER OF DATA CARDS DIVIDED BY TWO.
INPUT-FORMAT-----FIXED(60F1.0,4X,3F2.0,3X,F3.0,F4.0/
60F1.0,4X,3F2.0,3X,F3.0,F4.0)
VAR-LABELS-----DAY1 DAY FIRST SAMPLE/
DAY2 DAY SECOND SAMPLE/
MO1 MONTH FIRST SAMPLE/
MO2 MONTH SECOND SAMPLE/
YR1 YEAR FIRST SAMPLE/
YR2 YEAR SECOND SAMPLE/
SAMP1 FIRST SAMPLE ID NUMBER/
SAMP2 SECOND SAMPLE ID NUMBER/
MAN1 INDIVIDUAL ID NO ON FIRST DATA CARD/
MAN2 INDIVIDUAL ID NO ON SECOND DATA CARD/
COMPUTE-----XORDER=0
COMPUTE-----XORDER=LAG(XORDER)
IF-----((MAN2 NE MAN1) REPORT,=MAN1)
IF-----((MAN2 NE MAN1) REPORT,=MAN2)
RECODE-----IT101 TO IT160, SAMP1, MAN1, IT201 TO IT260, SAMP2, MAN2
(BLANK=0)
MISSING-VALUES IT101 TO IT160, SAMP1, MAN1, IT201 TO IT260, SAMP2, MAN2(0)
COUNT-----NORSP1=IT101 TO IT160 (0)
COUNT-----NORSP2=IT201 TO IT260 (0)
DO REPEAT-----IT1X=IT101 TO IT160
IF-----((NORSP1 GT 6 OR NORSP2 GT 6) IT1X=0)
IF-----((NORSP1 LE 6 AND IT1X EQ 0) IT1X=3)
END REPEAT-----
DO REPEAT-----IT2X=IT201 TO IT260
IF-----((NORSP1 GT 6 OR NORSP2 GT 6) IT2X=0)
IF-----((NORSP2 LE 6 AND IT2X EQ 0) IT2X=3)
END REPEAT-----

```

```

DO REPEAT      ITEMX=IT101 TO IT104, IT109 TO IT111, IT118 TO IT121,
               IT114, IT125, IT127, IT129, IT131, IT133 TO IT135, IT137,
               IT138, IT140, IT142, IT148, IT144 TO IT146, IT150, IT152,
               IT155, IT156, IT160, IT201 TO IT204, IT209 TO IT211, IT218 TO
               IT221, IT214, IT225, IT227, IT229, IT231, IT233 TO IT235,
               IT237, IT238, IT240, IT242, IT248, IT244 TO IT246, IT250, IT252,
               IT255, IT256, IT260.
REC'DE        ITEMX (1=5) (2=4) (4=2) (5=1)
END REPEAT
COMPUTE      ARMY1=IT101+IT106+IT122+IT126+IT144+IT147+IT148+IT152
COMPUTE      ARMY2=IT201+IT206+IT222+IT226+IT244+IT247+IT248+IT252
COMPUTE      OFF1=IT102+IT107+IT111+IT129+IT134+IT136+IT139+IT150
COMPUTE      OFF2=IT202+IT207+IT211+IT229+IT234+IT236+IT239+IT250
COMPUTE      NCO1=IT114+IT118+IT123+IT125+IT130+IT138+IT146+IT153
COMPUTE      NCO2=IT214+IT218+IT223+IT225+IT230+IT238+IT246+IT253
COMPUTE      TRNG1=IT112+IT121+IT131+IT132+IT137+IT142+IT151+IT154
COMPUTE      TRNG2=IT212+IT221+IT231+IT232+IT237+IT242+IT251+IT254
COMPUTE      MTMOR1=IT108+IT110+IT115+IT135+IT141+IT145+IT156+IT159
COMPUTE      MTMOR2=IT208+IT210+IT215+IT235+IT241+IT245+IT256+IT259
COMPUTE      DSCON1=IT105+IT113+IT116+IT120+IT128+IT133+IT155+IT157
COMPUTE      DSCON2=IT205+IT213+IT216+IT220+IT228+IT233+IT255+IT257
COMPUTE      PRSAD1=IT104+IT109+IT117+IT119+IT127+IT143+IT149+IT158
COMPUTE      PRSAD2=IT204+IT209+IT217+IT219+IT227+IT243+IT249+IT258
COMPUTE      MISC1=IT103+IT124+IT140+IT160
COMPUTE      MISC2=IT203+IT224+IT240+IT260
COMPUTE      TOTAL1=ARMY1+OFF1+NCO1+TRNG1+MTMOR1+DSCON1+PRSAD1+MISC1
COMPUTE      TOTAL2=ARMY2+OFF2+NCO2+TRNG2+MTMOR2+DSCON2+PRSAD2+MISC2
COMPUTE      ARMYC=ARMY2-ARMY1
COMPUTE      OFFC=OFF2-OFF1
COMPUTE      NCDC=NCO2-NCO1
COMPUTE      TRNGC=TRNG2-TRNG1
COMPUTE      MTMORC=MTMOR2-MTMOR1
COMPUTE      DSCONC=DSCON2-DSCON1
COMPUTE      PRSADC=PRSAD2-PRSAD1
COMPUTE      MISCC=MISC2-MISC1
COMPUTE      TOTALC=TOTAL2-TOTAL1
IF          ( MO1 EQ 1) WEEK1=RND((DAY1)/7)+52*(YR1-77)
IF          ( MO2 EQ 1) WEEK2=RND((DAY2)/7)+52*(YR2-77)
IF          ( MO1 EQ 2) WEEK1=RND((DAY1+31)/7)+52*(YR1-77)
IF          ( MO2 EQ 2) WEEK2=RND((DAY2+31)/7)+52*(YR2-77)
IF          ( MO1 EQ 3) WEEK1=RND((DAY1+59)/7)+52*(YR1-77)
IF          ( MO2 EQ 3) WEEK2=RND((DAY2+59)/7)+52*(YR2-77)
IF          ( MO1 EQ 4) WEEK1=RND((DAY1+90)/7)+52*(YR1-77)
IF          ( MO2 EQ 4) WEEK2=RND((DAY2+90)/7)+52*(YR2-77)
IF          ( MO1 EQ 5) WEEK1=RND((DAY1+120)/7)+52*(YR1-77)
IF          ( MO2 EQ 5) WEEK2=RND((DAY2+120)/7)+52*(YR2-77)
IF          ( MO1 EQ 6) WEEK1=RND((DAY1+151)/7)+52*(YR1-77)
IF          ( MO2 EQ 6) WEEK2=RND((DAY2+151)/7)+52*(YR2-77)
IF          ( MO1 EQ 7) WEEK1=RND((DAY1+181)/7)+52*(YR1-77)
IF          ( MO2 EQ 7) WEEK2=RND((DAY2+181)/7)+52*(YR2-77)
IF          ( MO1 EQ 8) WEEK1=RND((DAY1+212)/7)+52*(YR1-77)
IF          ( MO2 EQ 8) WEEK2=RND((DAY2+212)/7)+52*(YR2-77)
IF          ( MO1 EQ 9) WEEK1=RND((DAY1+243)/7)+52*(YR1-77)
IF          ( MO2 EQ 9) WEEK2=RND((DAY2+243)/7)+52*(YR2-77)
IF          ( MO1 EQ 10) WEEK1=RND((DAY1+273)/7)+52*(YR1-77)
IF          ( MO2 EQ 10) WEEK2=RND((DAY2+273)/7)+52*(YR2-77)
IF          ( MO1 EQ 11) WEEK1=RND((DAY1+304)/7)+52*(YR1-77)

```

```

IF      ( M02 EQ 11) WEEK2=RND((DAY2+304)/7)+52*(YR2-77)
IF      ( M01 EQ 12) WEEK1=RND((DAY1+335)/7)+52*(YR1-77)
IF      ( M02 EQ 12) WEEK2=RND((DAY2+335)/7)+52*(YR2-77)
VAR LABELS  ARMYC  CHANGE IN ATTITUDES TOWARD ARMY/
             DFFC  CHANGE IN ATTITUDES TOWARD OFFICERS/
             NCOC  CHANGE IN ATTITUDES TOWARD NCOS/
             TRNGC  CHANGE IN ATTITUDES TOWARD TRAINING/
             MTHORC  CHANGE IN MOTIVATION AND MORALE/
             DSCONC  CHANGE IN DISCIPLINE AND CONTROL/
             PRSADC  CHANGE IN PERSONAL ADJUSTMENT/
             MISCC  CHANGE IN MISCELLANEOUS AREAS
             TOTALC  CHANGE IN TOTAL ATTITUDE
LIST CASES  CASES=100000/ VARIABLES=NORSP1,NORSP2,WEEK1,WEEK2,
             MAN1
COMMENT     *USE LISTING TO CHECK ORDERING OF CARDS IN DECK ACCORDING
             TO THE INDIVIDUAL*
TASK NAME   DESCRIPTIVE STATISTICS FOR ATTITUDE CHANGES
IF          (XORDER NE 0) STOP.=XORDER
RAW OUTPUT UNITCIRAZ
CONDESCRIPTIVE TOTALC,ARMYC TO PRSADC
OPTIONS     3
STATISTICS  1 TO 8,10,11,13,14
READ INPUT DATA
COMMENT     *PLACE DATA CARDS IN ORDER AFTER READ INPUT DATA CARD*
             ORDER CARDS BY INDIVIDUAL WITH FIRST SAMPLE FIRST
DELETE VARS IT101 TO SAMP1,IT201 TO SAMP2,XORDER
SAVE FILE   CRAW
FINISH
W
V

```

APPENDIX D

1. In general, how well do you think the Army is run?
 - a. Extremely well
 - b. Very well
 - c. Pretty well
 - d. Not very well
 - e. Very poorly
2. How well do your officers understand the needs and problems of their men?
 - a. Extremely well
 - b. Very well
 - c. Pretty well
 - d. Not very well
 - e. Very poorly
3. Have you gotten the praise you deserve for your improvement in training so far?
 - a. All I deserve and more
 - b. Just what I deserve
 - c. Not quite what I deserve
 - d. Less than I deserve
 - e. Much less than I deserve
4. Are you ever worried and upset?
 - a. I am never worried and upset
 - b. I am hardly ever worried and upset
 - c. I am sometimes worried and upset
 - d. I am often worried and upset
 - e. I am usually worried and upset
5. Do you think there is too much unnecessary harassment in the Army?
 - a. Much too much
 - b. Somewhat too much
 - c. A little too much
 - d. Not too much
 - e. Hardly any
6. To what extent are promotions in the Army based on ability?
 - a. Only slightly
 - b. Somewhat
 - c. Quite a bit
 - d. A great deal
 - e. Almost entirely
7. How much respect do you have for your officers?
 - a. Hardly any
 - b. A little bit
 - c. Some
 - d. A fair amount
 - e. A great deal
8. How many men in your unit want to do a good job in training?
 - a. Few of them
 - b. Some of them
 - c. Many of them
 - d. Most of them
 - e. Almost all of them
9. How do you feel about life in the Army?
 - a. Very satisfied
 - b. Fairly satisfied
 - c. Somewhat satisfied
 - d. Not very satisfied
 - e. Very dissatisfied

10. Do you feel that what you are doing in the Army is worthwhile?
- It is extremely worthwhile
 - It is very worthwhile
 - It is mostly worthwhile
 - It is somewhat worthwhile
 - It isn't very worthwhile
11. When your officers give you something to do, do they tell you enough about it so that you can do a good job?
- Always enough
 - Usually enough
 - Sometimes enough
 - Often not enough
 - Almost never enough
12. How much of the training you have been getting is needed to make men good soldiers?
- Much is not needed
 - About half is not needed
 - Some is not needed
 - Most is needed
 - Almost all is needed
13. How often do men in your unit get punished for something that isn't their fault?
- Very often
 - Quite often
 - Sometimes
 - Not very often
 - Almost never
14. How well do your NCOs understand the needs and problems of their men?
- Extremely well
 - Very well
 - Fairly well
 - Not too well
 - Very poorly
15. On the whole, how is the morale in your company?
- Very low
 - Low
 - Just so-so
 - High
 - Very high
16. How is the military control and discipline in your unit?
- Much too strict
 - A little too strict
 - About right
 - A little too loose
 - Much too loose
17. How do you feel most of the time, in good spirits or in low spirits?
- I am usually in low spirits
 - I am often in low spirits
 - My feelings change back and forth
 - I am often in good spirits
 - I am usually in good spirits
18. Can you trust your NCOs not to get things all fouled up?
- Almost always
 - Most of the time
 - Much of the time
 - Only sometimes
 - Usually not

19. Have you gotten over your fears about life in the Army?
- Almost all of them
 - Most of them
 - Many of them
 - Some of them
 - Few of them
20. Is tough discipline necessary to get men to do things the right way?
- Very necessary
 - Pretty necessary
 - Somewhat necessary
 - Not very necessary
 - Not at all necessary
21. How tough is the physical training program?
- Very easy
 - Fairly easy
 - Not very tough
 - Pretty tough
 - Much too tough
22. Does the Army do what is possible to put men in the jobs for which they are most suited?
- Hardly anything is done
 - Not much is done
 - Some things are done
 - Most things are done
 - Everything possible is done
23. How much respect do you have for your NCOs?
- Hardly any
 - A little bit
 - Some
 - A fair amount
 - A great deal
24. Do your NCOs act angry and mean when men make mistakes?
- Almost always
 - Most of the time
 - Sometimes
 - Not often
 - Hardly ever
25. When your NCOs give you something to do, do they tell you enough about it so that you can do a good job?
- Almost always enough
 - Usually enough
 - Sometimes enough
 - Often not enough
 - Almost never enough
26. How good is the equipment in the Army?
- Very poor
 - Not very good
 - Pretty good
 - Very good
 - Excellent
27. If you were offered an honorable discharge today, would you take it?
- I'm sure I would not
 - Yes, but only if I could get a good job
 - I'm not sure what I would do
 - Yes, if I could get any kind of a job
 - I'd take it no matter what
28. Is the discipline you get in the Army good for you?
- Very bad
 - Not very good
 - Pretty good
 - Very good
 - Extremely good

29. Can you trust your officers not to get things all fouled up?
- a. Almost always
 - b. Most of the time
 - c. Much of the time
 - d. Only sometimes
 - e. Usually not
30. How well do the NCOs in charge of your work really know their stuff?
- a. Not well at all
 - b. Not very well
 - c. Pretty well
 - d. Very well
 - e. Extremely well
31. How much more training do you think you need to be ready for combat?
- a. Not much more
 - b. A little more
 - c. Some more
 - d. Much more
 - e. Very much more
32. During training and drill periods, do you have to spend too much time waiting around and doing nothing?
- a. Almost always
 - b. Very often
 - c. Sometimes
 - d. Not very often
 - e. Almost never
33. How often in the Army are a lot of men made to suffer because one or two men foul up?
- a. Almost never
 - b. Not very often
 - c. Sometimes
 - d. Quite often
 - e. Very often
34. Do your officers show favoritism to some men in your unit?
- a. Almost never
 - b. Once in a while
 - c. Not usually
 - d. Sometimes
 - e. Quite often
35. Has the morale in your company gotten better and better as time goes on?
- a. Very much so
 - b. Pretty much
 - c. Only a little
 - d. Not very much
 - e. Not at all
36. How much are your officers interested in your welfare and personal problems?
- a. Very uninterested
 - b. Not much interested
 - c. Somewhat interested
 - d. Very much interested
 - e. Extremely interested
37. How well do your training instructors know how to teach?
- a. Extremely well
 - b. Very well
 - c. Pretty well
 - d. Not very well
 - e. Very poorly
38. Do your NCOs show any favoritism to some men in your unit?
- a. Almost never
 - b. Once in a while
 - c. Not usually
 - d. Sometimes
 - e. Quite often

39. How well do the officers who are in charge of your unit really know their stuff?
- a. Not well at all
 - b. Not very well
 - c. Pretty well
 - d. Very well
 - e. Extremely well
40. Do you think you will be satisfied with your future job in the Army?
- a. Extremely satisfied
 - b. Very satisfied
 - c. Fairly satisfied
 - d. Not very satisfied
 - e. Very unsatisfied
41. Does it matter to you how well you do in the Army?
- a. Very little
 - b. Not very much
 - c. Somewhat
 - d. Quite a bit
 - e. Very much
42. How good is the training you are getting?
- a. Excellent
 - b. Very good
 - c. Pretty good
 - d. Not very good
 - e. Very poor
43. How much concern does the Army have for problems of the individual soldier?
- a. Hardly any concern
 - b. Little concern
 - c. Some concern
 - d. Much concern
 - e. Very great concern
44. How have your military experiences changed your respect for the Army?
- a. I have much more respect
 - b. I have somewhat more respect
 - c. I have no less respect
 - d. I have somewhat less respect
 - e. I have much less respect
45. How many men in your unit will make good soldiers?
- a. Almost all of them
 - b. Most of them
 - c. Many of them
 - d. Some of them
 - e. Few of them
46. How important to you are your NCO's opinions of your performance as a soldier?
- a. Extremely important
 - b. Very important
 - c. Somewhat important
 - d. Not very important
 - e. Very unimportant
47. How have your military experiences changed your interest in making a career of the Army?
- a. I have much less interest
 - b. I have some less interest
 - c. I have no less interest
 - d. I have more interest
 - e. I have much more interest
48. What is your opinion of Army rules and regulations?
- a. Almost all are necessary
 - b. Most are necessary
 - c. Many are necessary
 - d. Some are necessary
 - e. Only a few are necessary

49. Do you feel that life in the Army has been getting harder and harder for you?
- Very much so
 - Pretty much
 - Only a little
 - Not very much
 - Not at all
50. How important to you are your officer's opinions of your performance as a soldier?
- Extremely important
 - Very important
 - Somewhat important
 - Not very important
 - Very unimportant
51. Should combat training be made easier or harder than it is?
- Much easier
 - Somewhat easier
 - Not any harder
 - A little harder
 - Much harder
52. How have your military experiences affected your confidence in the Army's ability to defend our country?
- I have much more confidence
 - I have more confidence
 - My confidence did not change
 - I have less confidence
 - I have much less confidence
53. How much are your NCOs interested in your welfare and personal problems?
- Very uninterested
 - Not much interested
 - Somewhat interested
 - Very much interested
 - Extremely interested
54. How satisfied are you with the training you have been getting?
- Very dissatisfied
 - Not very satisfied
 - Mostly satisfied
 - Very satisfied
 - Extremely satisfied
55. Are you likely to get in trouble if you try to think for yourself in the Army?
- Not at all likely
 - Not very likely
 - Somewhat likely
 - Pretty likely
 - Very likely
56. Do you try to do your best?
- Almost always
 - Most of the time
 - Much of the time
 - Sometimes
 - Not often
57. Are men in the Army treated with proper respect regardless of their rank or job?
- Almost never
 - Not very often
 - Sometimes
 - Usually
 - Almost always
58. In general, how do you like the Army?
- I dislike it a lot
 - I dislike it some
 - It's not so bad
 - I like it all right
 - I like it very much

59. Are you getting a chance to use your skill and experience?

- a. Hardly any chance
- b. Not much of a chance
- c. A pretty good chance
- d. A very good chance
- e. An excellent chance

60. How much does the counseling you get from your NCOs help you?

- a. Very much
- b. Quite a bit
- c. Somewhat
- d. Not very much
- e. Hurts, not helps

APPENDIX E

ATTITUDE QUESTIONNAIRE INSTRUCTIONS

Administration of the attitude questionnaire (included in Appendix C of this report) first requires selection of trainees. The administrator should obtain a Company roster for each Company to be sampled, and randomly select 40 names. These 40 trainees should receive the attitude questionnaire at some time and place that fits into the Company schedule.

The person administering the questionnaire should be prepared to pass out the questionnaire booklets, answer sheets, pencils, and if change in attitude over time is of interest, stickers with seven-digit identification numbers as mentioned in the attitude questionnaire instructions that follow. The purpose of the identification stickers is to provide a means by which a given individual's responses can be compared over two samples, but still maintain the individual's anonymity. No administrative record will be kept associating any of the seven-digit numbers with any individual; rather, each individual will be asked to record his/her number upon completing the attitude questionnaire at each administration. If only one sample will be taken from each individual, assigning identification numbers is unnecessary. If change in individual attitudes is a central issue, the following instructions should be read exactly. If the questionnaire will be given only once to each person, numbered stickers should not be handed out and only the first paragraph of the first page of instructions should be read before going on to the second page of the instructions. When

reading the second to the last paragraph of the second page of instructions, the first sentence should be changed to read:

"You have a guarantee of privacy; no one will know who filled out which answer sheet so you can be entirely honest in your answers, without having to worry about anyone holding your answers against you."

The person administering the questionnaire should then read the necessary instructions to those completing the questionnaire, and assure that all trainees place the stickers on their I.D. cards, if necessary. After completing this, the administrator should make certain that no one has any questions, and instruct the trainees to begin. The administrator should then allow the trainees sufficient time to complete the questionnaire (usually about 45 minutes). It is important not to rush the trainees, as their attitudes may be temporarily influenced by being unnecessarily hurried. After all trainees finish, the administrator should collect all answer sheets (checking to be sure that all trainees have recorded their special seven-digit I.D. number, if necessary), booklets, and pencils. If individuals are to complete the questionnaire again at a later date, the procedure for administering the questionnaire will be identical, except that new I.D. numbers will not be handed out, and the trainees should be instructed to remove the stickers with their special seven-digit number from their I.D. cards.¹

¹If the user determines that it is necessary to administer the questionnaire more than twice, the stickers should not be removed from the trainees' I.D. cards until the last administration.

After all questionnaires are completed, the administrator should staple the answer sheets together with the card punching format information sheet (TRAMS Card Format sheet) provided in Appendix E. The administrator should be certain that the correct information is recorded in the blanks on the TRAMS Card Format sheet (Company, Platoon, Battalion, Day, Month, Year, POI, and Sample I.D.). The answer sheets with attached Card Format sheet should then be taken to the local MISO (Management Information Systems Office) for card punching.²

²The user should contact the local MISO to receive guidance on submitting this information, as well as on establishing the necessary computer account, project I.D., or any other data processing requirements.

ATTITUDE QUESTIONNAIRE

Instructions

This booklet contains questions asking how you feel about the Army and about life in the Army. Your answers to the questions will be used for research purposes only, and will not become part of any record or affect your position in the Army in any way.

You have gotten a numbered sticker along with your booklet and answer sheet. This sticker gives your special I.D. number, which will be used only for this research project. It should be a seven-digit number. Count the digits to make sure your number has seven digits. Then take out your Army I.D. card, remove the sticker from its backing, and fix the sticker on the back of your Army I.D. card, in the lower right-hand corner. If your number doesn't have seven digits, or if you can't read the number, or if you have trouble sticking it to your I.D. card, raise your hand now, and get a new sticker.

When you are finished putting the sticker on your I.D. card, write the seven-digit number completely and accurately in the seven spaces provided at the top of your answer sheet. Write one digit in each space.

When you are finished copying the number on the answer sheet, put your I.D. card away. For the purposes of this research project, it is very important that you keep your special I.D. number to use again after several weeks. Do not remove the sticker from your I.D. card for any reason until you are told to remove it.

The special I.D. number you have written on your answer sheet guarantees your complete privacy in answering the questions in this booklet. Nobody knows your particular number, and nobody will try to find out later on what your number is. Therefore, nobody can find out who used what answer sheet. Not even the researchers will have any way of connecting your answers to your name, so nobody can find out what your answers are. Do not show your special I.D. number to your officers, NCOs, other men in your unit, or anybody else. Everyone will cooperate with this requirement, and you will not be asked to show the number to anyone. You will only be asked to use the number again at a later time on a different answer sheet.

DO NOT TURN TO THE NEXT PAGE UNTIL TOLD TO DO SO

There are 60 questions, and each question has five possible answers. You will have 50 minutes to answer the questions. Read each question carefully, and decide which answer best describes your own feelings. Then circle the letter corresponding to that answer, and only that answer, on the answer sheet. Do not circle answers in the booklet or make any other marks in the booklet. Be sure that you have the correct item number on the answer sheet when you circle your answer.

For example, question number one might be:

1. How high are the standards of military courtesy in your unit?
 - a. Very high
 - b. Pretty high
 - c. Just so-so
 - d. Pretty low
 - e. Very low

If you think the standards are pretty high, but not very high, and not just so-so, you would circle b on the answer sheet for question 1.

1.	a	b	c	d	e
2.	a	b	c	d	e

If you have any questions, raise your hand now.

We have given you a special I.D. number and a guarantee of privacy so that you can be entirely honest in your answers, without having to worry about anyone holding your answers against you. We want to know how you really think and feel, not what somebody might want you to think or feel. It is important that you give the answer which best matches your own feelings on each question.

If you finish before the time is up, remain seated and quiet. The booklets and answer sheets will be turned in all at the same time after everyone is finished.

DO NOT READ THE QUESTIONS ON THE FOLLOWING PAGES UNTIL YOU ARE TOLD TO BEGIN

APPENDIX F
CARD FORMAT FOR ATTITUDE ANALYSIS

Information	Card Columns	Values
1. Responses to Items (1-60) (a=1, b=2, c=3, d=4, e=5)	(1) to (60)	(on sheets)
2. Company (A=1, B=2, C=3, D=4, E=5)	(61)	_____
3. Platoon (1-6)	(62)	_____
4. Battalion (01-19)	(63 - 64)	_____
5. Fill Date - Day (01-31)	(65 - 66)	_____
6. Fill Date - Month (01-12)	(67 - 68)	_____
7. Fill Date - Year (77-99)	(69 - 70)	_____
8. Blank	(71 - 72)	
9. POI (1-5)	(73)	_____
(1) 11EOSUT (4) 11EAIT (2) 11DOSUT (5) 11DAIT (3) BCT		
10. Sample I.D. (001-999)	(74 - 76)	_____
11. Individual I.D. (0001-9999)	(77 - 80)	(on sheets)

APPENDIX G

QUESTIONNAIRE ADMINISTRATION PROCEDURE

I. FIRST ADMINISTRATION

1. Set up time and place to fit with Company schedule.
2. Obtain Company roster.
3. Select 40 trainees at random.
4. At administration, pass out booklets, answer sheets, pencils, numbered stickers.
5. Read first page of instructions, get stickers on I.D. cards.
6. Read second page of instructions, start.
7. Allow all the time needed (usually 45 min.). Don't let anybody rush you.
8. Pick up answer sheets first; then booklets and pencils.
9. Check answer sheets to see I.D.s done.

II. SECOND ADMINISTRATION

(Same as first except stickers are removed.)

After returning to office, staple answer sheets with form sheet on top. Fill out Company info on form sheet. Stamp Company I.D. code on each answer sheet. Take to MISO for punching.

APPENDIX H

MANDATORY USER UPDATES OF ATTITUDE MONITORING PROGRAMS

The "Summary" program requires the user to change:

- (1) The run number and date card. This should be retyped so that the word COMMENT remains in columns 1-7 and the statement RUN NUMBER N, DATE DAY, MONTH, YEAR begins in column 16. For example:

COMMENT _____ RUN NUMBER 7, DATE 3 APR 80

Note that a "_" in the above card indicates a blank. This card is simply to help the user document the run. Errors will not be reported if the card is not changed, or changed incorrectly.

- (2) The N OF CASES card. The number beginning in column 16 should be the number of data cards to be analyzed. For example, if exactly 40 trainees complete the attitude questionnaire at each administration and the program is run after the first sample is taken, the card will read:

N OF CASES _____ 40.

If the program is run after the second sample of 40 is taken, it will read:

N OF CASES _____ 80.

If in doubt, count the number of data cards you have. If the number of cases on the N OF CASES card does not match the number of data cards, an error message will be printed and the job will terminate abnormally.

- (3) The *SELECT IF card. In conjunction with the LIST CASES card following, the *SELECT IF card causes the selected cases to be listed. The sample number on the card should be changed on each run if the user wishes a listing of only the most recent sample. For more information, see the section on Possible User Modifications.
- (4) The data deck. Every time a new sample is taken from a company and data cards are punched, they should be added to the data deck. Samples should be ordered from lowest to highest sample number, and the user may want to order the cards within each sample from the lowest to the highest man number for the sake of convenience. This ordering is desirable when the user wishes to delete the oldest samples from analysis (for example, those samples more than two years old). Although ordering of samples over time in the card deck is not imperative, data cards from different samples must not be intermixed! Intermixing samples is likely to produce problems in the "Aggregate" run, by producing aggregate groups of only one or

only a few individuals. The user may find it helpful to color the tops of data cards from different samples with differently colored felt-tip markers, and to label the first card in each sample with information about the Company, Platoon, Battalion, and Week.

The "Aggregate" program should require no change other than:

- (a) The run number and date card, as in the "Summary" program. As with the Summary program, this card is intended to help the user document his run, but changing it is not critical to the accuracy of the processing.

The "Charts" program requires the user to change:

- (a) The run number and date card, as in the Summary program, also for documentation purposes.
- (b) The N OF CASES card. The number of cases will equal the number of Company samples taken. If there is any doubt about the number that should be punched on this card (beginning in column 16), the user may wish to refrain from running the

Charts program until after receiving the printout from the Aggregate program. The number of cases will be equal to the number of aggregate groups described in the Aggregate output. The number of cases specified on the N OF CASES card must match the number of aggregate groups. If the number of cases specified on the N OF CASES card is greater than the number of aggregate groups, an error message will be printed and the program will terminate abnormally. If the number of cases specified on the N OF CASES card is less than the number of aggregate groups, no error messages will be printed, but the output of the "Charts" program will be incorrect; the number of Company samples printed on each control chart will be the number specified on the N OF CASES card and some Company samples will therefore be deleted.

The "Audit" program should require no changes as it stands, provided that the user has arranged for permanent disk storage space within the computer account. The user may not wish to run the "Audit" program in the same batch flow as the other three programs, but may wish to be certain that the output of the "Charts" program is correct before freeing disk space by deleting files. This can be done simply by not submitting the "Audit" program

for processing until after the output of the "Charts" program has been examined, or by running the "Audit" program as the first program in the processing flow beginning with the second run.

APPENDIX I

POSSIBLE USER MODIFICATIONS OF ATTITUDE MONITORING PROGRAMS

In addition to changes the user must make on each run, there are some changes that the user may wish to make for the sake of convenience in certain situations. These changes and their influences are outlined below.

The user may wish to delete the *SELECT IF and LIST CASES cards from the "Summary" program to reduce the output of the "Summary" program. There are several options open to the user with respect to these cards. First, the user may remove both cards which would result in no individual data being listed for that run. A second option is to include both cards, with the *SELECT IF card set for selecting the most recent sample; this will result in data from only the last sample being printed. As a third alternative, the user may delete the *SELECT IF card and retain the LIST CASES card. This will result in all the data from all samples submitted being printed for all individuals sampled. When the number of individuals sampled becomes large, this alternative becomes impractical. A fourth alternative is to simply remove both cards from the deck for most runs, and insert the LIST CASES card on an occasional run between the COMMENT cards referring to it. This will allow the user to examine the ordering of all data on a periodic basis. When the number of individuals sampled becomes large, this alternative also becomes impractical.

After the user has obtained a printout of all questions on the attitude questionnaire, he or she may not want to include them on any subsequent printout of the control charts. These questions can be removed from the output simply by removing all cards between and including the card reading "DOCUMENT _ _ _ _ _ FT KNOX TRAINEE ATTITUDE SURVEY ITEMS" and the last card of question 60 reading " _ _ _ _ _ VERY MUCH [1] HURTS NOT HELPS", which is the card preceding the PRINT FORMATS card.

The user may also not wish control charts on all eight scales within the attitude questionnaire. To delete one of the control charts, the user must remove its card from the SCATTERGRAM card set. For example, if the user does not wish a control chart to be printed on Discipline and Control, the DSCON(-7.71,7.71) WITH WEEK (60,161)/ card should be removed. If the user wishes to delete the control chart on Total Attitude, since it is specified on the first card, the SCATTERGRAM _ _ _ _ TOTAL (-7.71,7.71) WITH WEEK (60,161)/ card must be removed, and the following card must be modified so it contains the word SCATTERGRAM in columns 1-11. If the user wishes to delete the control chart on Personal Adjustment, since it is the last card in the sequence, the PRSAD (-7.71,7.71) WITH WEEK (60,161) card must be removed, and the trailing / at the end of the preceding card must be removed.

Another change that the user may wish to make involves the way the fill week is calculated. The program in the appendix calculates the week

from an arbitrary starting date of 1 January 1977. The user may change the year of the starting date by changing the last two digits of the IF cards in the Summary program that control the calculation of the week. For example, if the user wishes to designate 1 January 1980 as the arbitrary starting date, the IF cards would read:

```
IF _ _ _ _ _ (MO EQ 1) WEEK = RND((DAY)/7) +52*(YR-80)
IF _ _ _ _ _ (MO EQ 2) WEEK = RND((DAY+31)/7) +52*(YR-80)
IF _ _ _ _ _ (MO EQ 3) WEEK = RND((DAY+59)/7) +52*(YR-80)
. . . etc.
```